

Flight, July 16, 1910.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

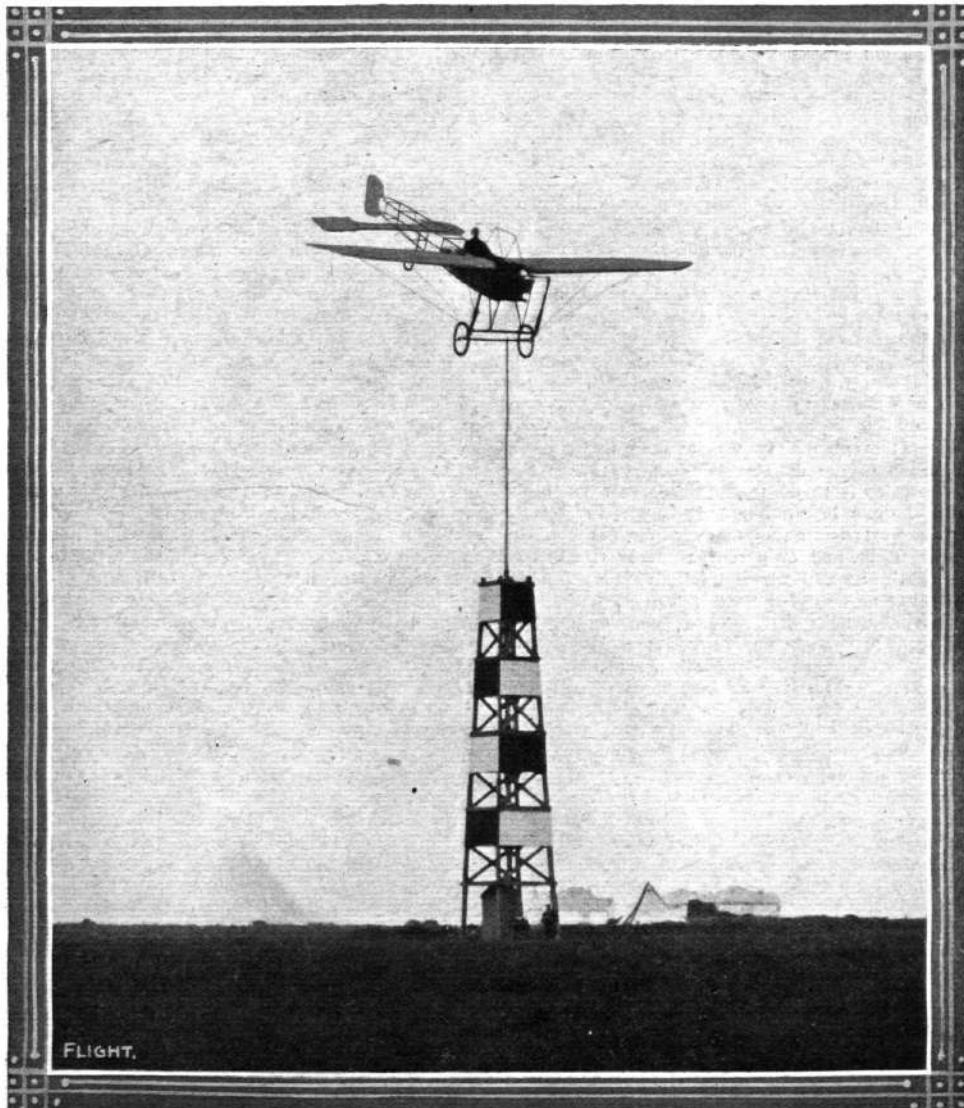
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A vol plane by Radley on his Bleriot monoplane at Bournemouth Aviation Meeting.

THE BOURNEMOUTH CATASTROPHE.

THERE are many things which have been brought forcibly home during the past few days as the direct outcome of the terrible accident at the Bournemouth aviation meeting on Tuesday, when the Hon. C. S. Rolls was instantly killed by the fall of his machine when in full view of the spectators. Firstly, of course, is the profound feeling of loss, not only on the part of those who could reckon him as a personal friend, but also on the part of that ever-growing section of the entire British public which had rightly come to recognise in him the plucky and enterprising type of man of whom the country seems to be particularly in need just now. In view of all that Mr. C. S. Rolls has been and has done, in view of the fact that he was as yet still quite a young man, and considering the place that he must have occupied with his parents, Lord and Lady Llangattock, the full force of the blow has proved almost staggering.

Apart from the purely personal aspects of this fatality—in connection with which FLIGHT desires to add its most heartfelt condolences to Mr. Rolls' bereaved parents—there is quite another point of view which ought also to be emphasised. Although only 33 years of age, Mr. Rolls had already done what it has fallen to the lot of very few men to do, and what only a very small percentage of men are capable of doing, whatever may be their opportunities. He had made a name in connection with the comparatively modern combination of scientific study and practical adaptation to the needs and desires of humanity, and had not only personally had the gratification of knowing the value of his achievement, but was actually happy in his recognition of the dangers that he had to court in order constantly to do useful things that no other man had done before him. It is well in fact for everyone to recognise the grandeur of such records as those of Rolls, and even the grandness attached to such deaths as that which it fell to his lot to meet. It was not as though he was not perfectly aware of the inevitable risks that he had been running year after year, first with the early automobiles, then with his balloons, and lastly with aeroplanes. And one cannot but feel it well for the youth of to-day to realise that for sheer enjoyment of life few can probably claim to have experienced even a tithe in the aggregate of that which Rolls must have enjoyed during his invaluable career.

Being the first British aviator of the modern school to have met his death in connection with aeronautic research—omitting, of course, Mr. Pilcher—and being at the same time so prominent a personality, the occurrence cannot but have a very marked influence one way or the other upon most other men who are fitted by nature to be pioneers, as well as upon many of his fellow airmen. The former should recognise the dignity that is lent to this type of work by the universal esteem in which they have now been afforded an opportunity of seeing that Mr. Rolls has been held; while those already engaged in this important and valuable sphere of development and research, will hardly fail to be encouraged by the

knowledge of the appreciation on the part of the public, from the highest to the lowest, that has been so markedly in evidence during the week.

Another line of thought almost equally irresistible is similarly suggested. Practically we may take it that Mr. Rolls had become sufficiently accustomed to fight on his machine to be immune from what might be termed all the more elementary of risks. Probably none of these would ever have brought him into such a predicament as that which terminated his splendid career on Tuesday. Apparently, in fact, nothing but a derangement of an equivalent character to the breaking of the steering-gear on a motor car could well have enabled fate to claim him as a victim in the way that it has done. Hence, just as was the case with the motor car ten years or so ago, pioneering had for him, and still has for all the more prominent of his fellow-airmen, developed into continued trial almost to destruction of machine after machine in order to bring to light the faults, so that each and every one could be ascertained and remedied as speedily as possible before they could be duplicated.

The real significance of this last-mentioned point is two-fold, inasmuch as it not only means that there is still ample field for quite a small army of pioneers in this country, but also because it answers largely the question that many a thoughtful reader must have found on the tip of his tongue at times during the last few days. We mean, of course, that doubts are natural as to whether the endeavour to achieve particularly difficult feats at aviation meetings, such as that at Bournemouth, ought to be expressly encouraged, and an abnormal degree of strain thereby be imposed upon the machines. And we answer the query in the affirmative, because we feel that progress essentially depends upon experience and knowledge, while at the same time there is nothing like these meetings, and these especially difficult tasks, to afford that very experience to which we refer.

The expression of things like this may perhaps seem to be somewhat cold-blooded at the present time. But there is not the slightest doubt that the good of the cause far outweighed in his estimation all personal considerations of self, and that the Hon. C. S. Rolls—enthusiast, worker and patriot as he was—would desire nothing better than that his death, like his life, should be not without its helpfulness. That perhaps is why, moreover, we would take this opportunity of emphasising the fact that from the very first his inclinations were towards anything and everything of a mechanical kind, and that his bent was, in fact, one which is all too often checked rather than encouraged. There are many like Mr. Rolls for whom ordinary routine instinctively has quite the converse of any attraction, and for whom there is yet more and more demand year by year if only it were known. Surely the triumphant career of the man who only recently flew from Dover to Calais and back without alighting ought to do much to render easier the lot of others who are capable under favourable circumstances of following in his footsteps.

FLIGHT PIONEERS.



CAPT. BERTRAM DICKSON.

BOURNEMOUTH AND ITS INTERNATIONAL FLYING WEEK.

A DIARY OF THE HAPPENINGS.

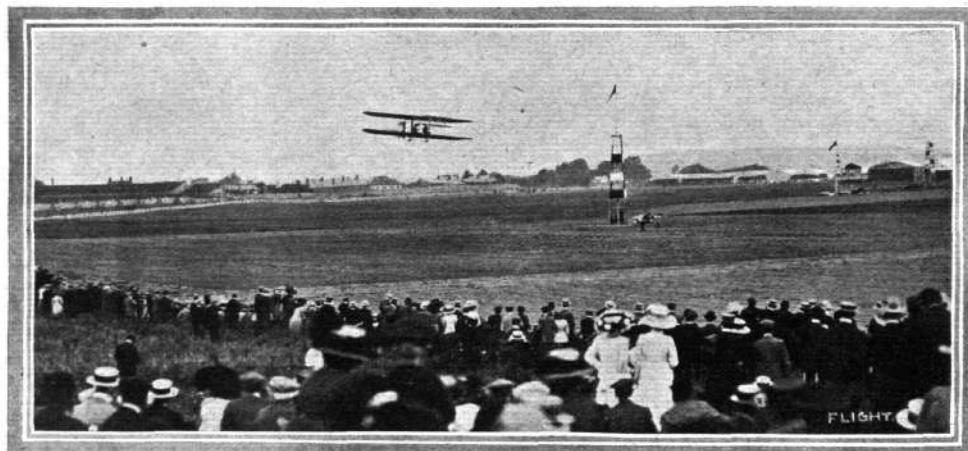
Sunday, July 10th.

"WELCOME" is the greeting extended everywhere to the visitor, and it is written in letters of gold on a score of banners, which shimmer in the sunshine; that is itself far from the least of the gifts that Bournemouth offers to its guests on this the auspicious occasion of its Centenary Fêtes. Bournemouth is naturally a pretty place, but it fancies itself mightily in its gala dress of flags and bunting wherewith it is decorated in honour of this its hundredth

have represented a great part of the load, but it was there, and in any case the flight from the flying school in the New Forest round the Needles was a splendid effort in itself.

Much interest was taken in the machine by the sightseers, who were able to approach the sheds and were not even charged for the privilege.

Observance of the Sunday therefore has its advantages. The authorities in Bournemouth despised to take advantage of the day,



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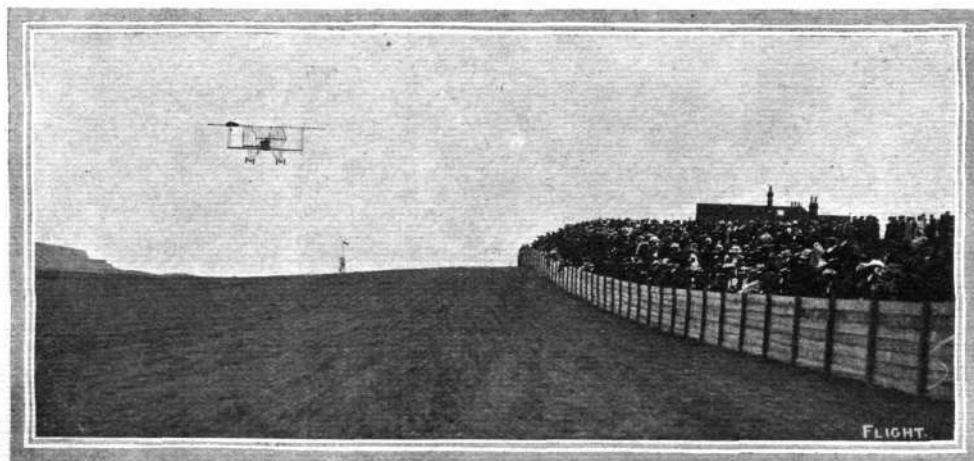
The late Hon. C. S. Rolls, on his Wright flyer, starting for his trial in the Slow Competition at Bournemouth.

anniversary. On Sundays Bournemouth takes on the outward signs of ultra repose so dear to the heart of the churchman. The trams do not run, and those who would take the air must walk, an enforced health restorer which has many great points in its favour. Somewhere about 2,000 people thought the aerodrome would be a good venue on this Sabbath morning, and they were rewarded for their exertions by many an interesting sight, with one very fine one in particular, Mr. McArdle arriving with his luggage on Mr. Armstrong Drexel's Blériot monoplane. The luggage may not

and the crowd had a fine time, perfectly oblivious of the fact that it is not the safest thing in the world to hustle about an aeroplane that is out for practice.

Monday, July 11th.

Quite the most satisfactory aspect of the opening day of the Bournemouth flying meeting is the readiness of the majority of the competitors. Spectators who come at 10 o'clock for a performance that is timed to commence at eleven cannot complain if they hear



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Christiaens travelling down the aerodrome on his Henry Farman biplane past the two-shilling enclosure at the Bournemouth Aerodrome. Note the mark-post in the distance for which Christiaens is making.

as they arrive the now familiar buzz of an aeroplane in flight. It is, at any rate, only a few minutes past the hour when the Hon. C. S. Rolls takes out his Wright biplane, and after a short run rises in flight before the grand stands that are already peopled with a sparse gathering. It is, of course, only a trial flight; but these preliminary circuits make an auspicious beginning and help to dispel the gloom that prevails still earlier in the morning when it was known that Cecil Grace had wrecked his Short biplane during a daybreak spin. This was about the most unfortunate thing that could have occurred, for Grace is one of the best of our British aviators, and everyone was most anxious to see him compete successfully in the various events. Moreover, it was a case of exceptionally hard luck. A cracked cylinder-head had just been rectified and then a piston seized during the first subsequent trial flight. The accident occurred over a spot that was certain to damage the machine in the event of a forced descent, so that nothing the pilot could do would serve to avert disaster. He was unable to clear the dyke and equally unable to stop in advance of it. He tried to turn, but he only succeeded in making an oblique dive into the ditch. This smashed the machine, but Grace himself was unhurt, and will fly his second machine so soon as it can be got in readiness.

No sooner had Rolls landed after four successful circuits than Grahame-White ascends with his Farman biplane and subsequently takes a passenger for a short flight.

Rolls' machine is the modified Wright with the hinged tail plane interlocked with the elevator. It has also small wheels fastened to the skids, and as there is no spring or elastic suspension, landing has to be accomplished with much delicacy and discretion. "You have to behave as if you were trying to land on a billiard-table without spoiling the cloth," is the way Rolls himself expresses it.

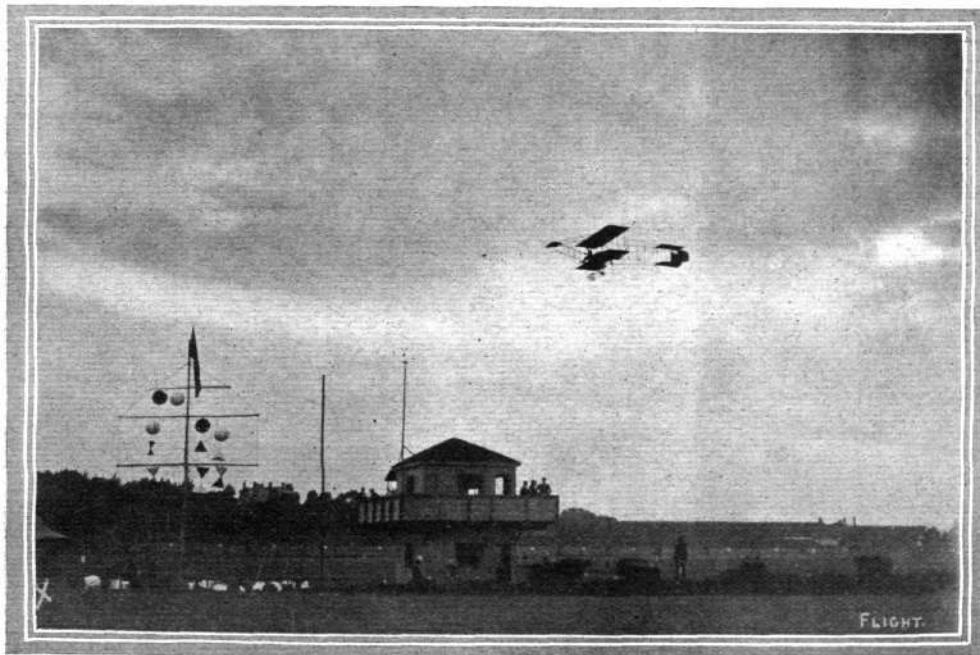
A few minutes past eleven Christiaens brings out his Farman with the short span lower deck and Gnome engine. Without delay he starts off for the long distance prize in ideal weather conditions, or although the signal mast credits the wind with an official speed of between 5 and 8 miles an hour the breeze is scarcely perceptible. Christiaens flying for this event is not spectacular; he flies low and steadily, somewhat after the manner of Farman himself, but faster. Lap succeeds lap, and the machine in the air holds the spectators' attention only so long as silence in the paddock continues to indicate that no one else is going up.

When Christiaens has totted up thirteen laps Rolls brings out his tailed Wright biplane for an attempt on the slowest circuit. Very quickly he ascends to an altitude of two or three hundred feet—it is



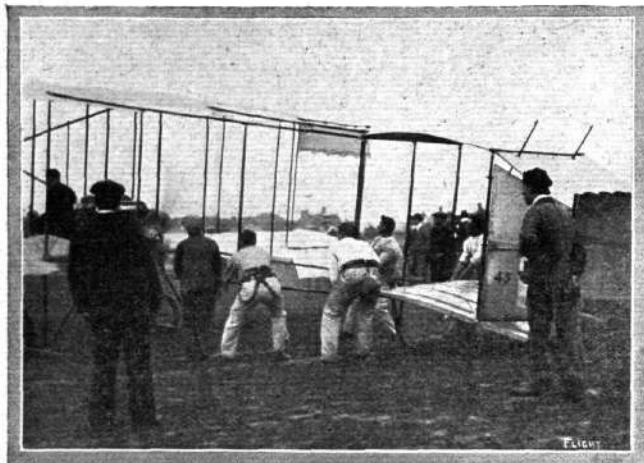
FLIGHT

"Flight" Copyright.
The late Hon. C. S. Rolls after his first official flight on Monday last at the Bournemouth Meeting.



FLIGHT

Claude Grahame-White, on Monday evening during his long evening flight on his Henry Farman, passing the Judges' box and signalling apparatus at Bournemouth Aerodrome.



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Holding back Captain Dickson's Henry Farman machine for a start at Bournemouth Meeting.

difficult to judge actual values—and slows down the engine until the power developed is only just sufficient to sustain horizontal motion. Slowly and rather majestically the biplane circles the course, and while he is still aloft Radley starts off on his Blériot monoplane for the speed prize.

Three machines are now in the air, and all are progressing at different velocities. Christiaens, still flying low and piling up miles, overtakes Rolls, while Radley, at about the same altitude as Christiaens, gains a little in speed on the biplane. After a few laps Radley planes rapidly to earth, vaults off his machine in the approved manner of monoplanists, and runs alongside. His fastest lap was 2 mins. 51 $\frac{1}{2}$ secs. = 37 $\frac{1}{4}$ m.p.h. Rolls also descends after a really fine demonstration of slow speed flying, and the notice board credits him with a slowest lap (3,140 yds.) of 4 mins. 13 secs., which is equivalent to about 25 $\frac{1}{2}$ miles an hour.

Boyle then takes out his Avis, but the wings not being properly adjusted, he descends between the first and second mark-posts before getting on to the bad ground at the far end, which is generally regarded by the aviators as certain to break up the chassis of any machine that is so unfortunate as to have to come down on it.

With but a few minutes' delay after his descent from the slow speed test Rolls remounts his machine for the speed prize and gives a fine demonstration of turning at the corners that is in marked contrast to the drifting of Christiaens, who is still solemnly adding to

his mileage. Armstrong Drexel on his Blériot monoplane is the next out, and as his effort is for the altitude prize there are now four machines in the air each competing for one of the four prizes that are alone open for competition in to-day's programme. Drexel is speedily aloft and flies wide of the course; very soon he is high up in the grey sky, lost to view by some of the spectators who have tried to follow all the machines at once. The spectacle now presented is unique in British flying, and even before Drexel descends to earth by a steep glide, Dickson gets up on his Farman and is followed by Grahame-White.

Both these latter attempts are short-lived although successful in kind, and after a spell of comparative excitement the scene once more resolves itself into the inevitable Christiaens stolidly circling round like some great bird patiently waiting for its prey. At last even he sinks to earth at the end of 47 laps that have lasted 2h. 20m. 52 $\frac{1}{2}$ s., and have totalled to his credit a distance of 83 miles 1,500 yards.

His intermediate official times are as follow:

	h. m. s.	h. m. s.
10 laps in	0 30 20 $\frac{1}{2}$	40 laps in 1 59 6 $\frac{1}{2}$
20 " "	0 59 46 $\frac{1}{2}$	47 " 2 20 52 $\frac{1}{2}$
30 " "	1 29 0 $\frac{1}{2}$	

His descent was due to failing engine power; the Gnome rotary engine having begun to show signs of stickiness about the atmospheric valves in the pistons, which were subsequently taken out and cleaned.

Other official figures at this period are:—

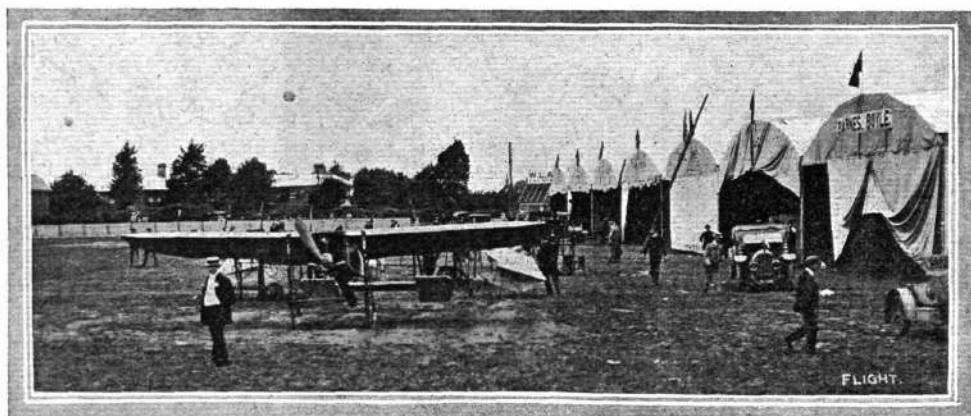
Altitude—Drexel, 1,950 ft.

Speed—

Grahame-White 5 laps ...	in 14 mins. 48 $\frac{1}{2}$ secs.
fastest lap ...	, 2 " 53 $\frac{1}{2}$ "
Rolls ...	... 5 laps ... , 14 " 50 $\frac{1}{2}$ "
fastest lap ...	, 2 " 52 $\frac{1}{2}$ "

Thus Rolls is exactly one second slower than Radley in the record for the lap speed, and is a little slower than Grahame-White on the five laps. The lap speeds of the Farman and Wright biplanes are sensibly equal, and about 37 $\frac{1}{4}$ m.p.h., which compared with Rolls' slow test of 25 $\frac{1}{2}$ m.p.h. would seem to show a useful range of speed for the Wright machine of approximately 1 to 1 $\frac{1}{2}$ under exactly similar weather conditions.

From the scientific point of view the flights of Rolls are the best product of the morning's proceedings, although it is possible that their real significance may escape general observation. The Wright biplane has an engine that, although the bore and stroke are 110 mm., is said to be incapable of developing more than 25-h.p. at 1,400 r.p.m. for any length of time. A test in Germany of one of the earlier engines showed that the power fell to 18-h.p. after 10 mins. run, and if the present Bariquand and Marre motors are a better job, as seems to be the case, the design itself would appear to suffer from great limitations. If we allow that the power is that stated



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IN FRONT OF THE BOURNEMOUTH AEROPLANE SHEDS.—The Humber and Avis monoplanes are standing in the foreground.

the Wright biplane may claim to rank as the most efficient flying machine among those present. In flight the total weight is probably about 1,200 lbs., and the effective surface of support such that the lift required is about 24 lbs. per sq. ft., which, as we have seen, is available at 25½ m.p.h. So far as the fuel economy of the engine is concerned the results are far from satisfactory. It consumes a gallon of petrol in about 14 mins., or over 4 gallons an hour, which for 25-h.p. is at the rate of $\frac{1}{3}$ pints per h.p. hour. A fair value for a well-designed internal-combustion engine would be about 8 pint per h.p. hour. It is of course well known that the practice of injecting the fuel without the aid of a carburettor does not make for economy. Throughout both flights the engine ran most regularly, and especially was this noticeable during the slow test, when it was possible to observe more accurately its working. The propellers on this machine are driven by chains, the sprockets for which have 10 and 34 teeth on the crank-shaft and propeller-shaft respectively.

During the luncheon interval Barnes takes out the Humber monoplane, but a forced descent in the bad ground terminates a short flight. A signal is speedily hoisted stating that the pilot is unhurt, and motor cars are despatched forthwith to his assistance. In a few minutes the wingless frame is towed back to the shed. Boyle then makes another attempt for the speed prize, but this time the engine fails to pull properly, and he descends after a scrape round.

The commencement of the afternoon's flying is about four o'clock, when Grahame-White makes an attempt for the altitude prize, resulting in an ascent to 1,660 ft., followed by a quick glide to earth.

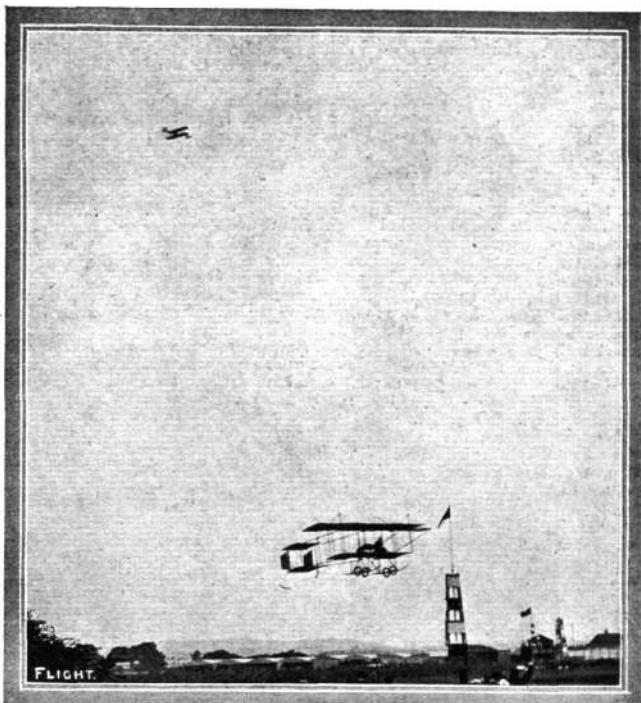
Radley follows for the speed prize, and makes one lap in 3 mins. 48 secs., after which there is another pause, until at 5 o'clock Rolls ascends for the altitude prize in a wind officially recorded as 8-11 m.p.h., the change having occurred just prior to the start. At an altitude of about 973 ft. he flies into a faint whirlwind which alters the course of his machine, and causes him to think the control is at fault, for which reason he at once descends.

About this time the crowd breaks through the barrier on one side of the ground, and delays the proceedings until a force of mounted police clear the course. Then Rolls restarts, but decides this time to go for speed, as he is behind Grahame-White on the five-lap test. In this attempt he not only betters his best lap, but improves on Grahame-White's time for five laps.

Rolls' times are as follow:—

5 laps in 14 mins. 39½ secs. Fastest lap in 2 mins. 39½ secs. The lap time gives a speed of 40½ m.p.h., so that up to date Rolls holds both speed records. This seems an excellent performance for the Wright biplane, but the wind conditions are not quite identical with those of the slow speed test, and may have affected the result.

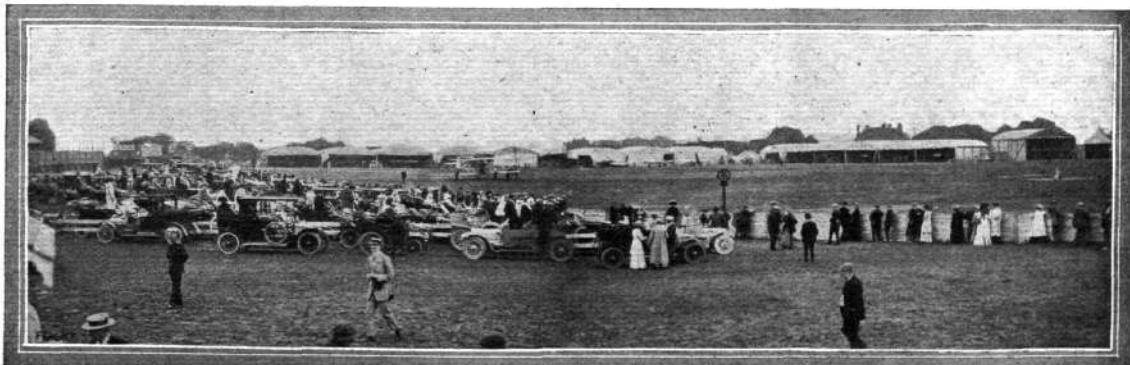
Gibbs also tries for the speed prize, but his times of 15 mins.



"Flight" Copyright.
M. Christiaens on his Henry Farman during a long-distance flight, and above, the late Hon. C. S. Rolls going for the height prize on his Wright machine.

21½ secs. for the five laps, and 3 mins. 23½ secs. for the fastest lap, fail to place him in the zone of success at that attempt. Two machines then ascend, Grahame-White for distance, and Drexel for another attempt on altitude, the record for which he already holds. These are followed by signals announcing Radley and Boyle for the speed prize.

Meanwhile Drexel is making a wonderful flight up in the sky, climbing up to 2,490 ft. He took about 12 mins. going up, and about 8 mins. coming down, including the landing. If his flight speed was in the order of 40 miles an hour, his glide took place at an angle of about 1 in 5. Radley's attempt on speed results in a best lap in 2 mins. 49½ secs., but a forced descent due to failure of the pressure feed, owing to forgetting to pump up, curtails the trial. On his third attempt he succeeds in leading Rolls' time by exactly



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View of the aeroplane sheds and A.A. car garage at Bournemouth Aerodrome, as seen from the Press stand.

one second, so that his time of 2 mins. 38 $\frac{1}{2}$ secs. now stands at the head of the list. Christiaens, again flying very low but apparently faster, also makes an attempt on speed with a fastest lap in 2 mins. 38 $\frac{1}{2}$ secs., thus tying with Radley, and five laps in 13 mins. 32 $\frac{1}{2}$ secs., which places him first with a lead of 1 min. 7 $\frac{1}{2}$ secs. on Rolls.

Dickson goes up next for a trial flight, and concludes a short spin with an admirably executed steep glide. The wind has now dropped to its lowest recorded value of under three miles an hour, and all the flags hang limp. Again Dickson takes up his Farman, and in a short time goes out of bounds towards Wimborne, and turns seawards. The signal-board, however, shows that this fine flight is not officially observed. Presently Dickson returns and descends so that Grahame-White is left in the air to finish off alone the best day of flying that has yet been seen in Britain.

Before starting on his long-distance flight, Grahame-White asked the Committee to grant an extension of time in his favour under a clause in the rules which gives the officials this power, and as the result of their consent he was able to fly on until 9 p.m., although sunset occurred at 8.13 p.m. Under these circumstances he is credited with 50 laps = 89 miles 360 yds. for the long-distance contest. His time for this distance was 2h. 31m. 49 $\frac{1}{2}$ s., which is equivalent to a speed of 35.4 m.p.h., or a shade slower than Christiaens. Grahame-White was nearly 2 mins. slower on Christiaens' time for the 47 laps.

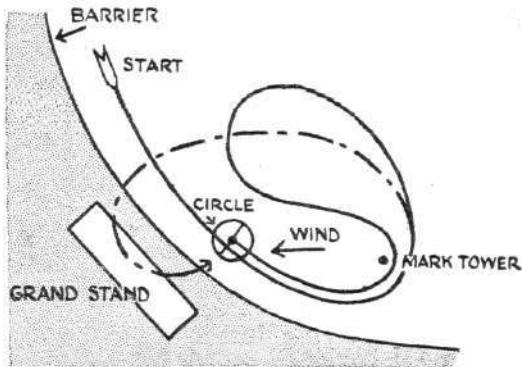
Tuesday, July 12th.

Greater evidence of sunshine brought an increased velocity of wind, the flags waving energetically in the breeze, and the signal mast carrying the white sphere and black cone, to signify "wind between 11 and 14 miles an hour." Until noon, there is not so much as the sound of an engine, and when Grahame-White ascends in his shirt-sleeves, it is only to make a short circuit for the benefit of his engine, in preparation for the landing prize, that is to be held between the hours of 11 and 1 p.m. A few minutes later he makes the attempt, by crossing a white line in flight, circling a mark tower once, and returning to a white circle that has been described to a radius of 50 yds. on the starting line as its diameter. In the centre of the circle is a white "bull's-eye," 12 ft. in diameter, and driving low across the wind, Grahame-White touches ground within the circle, and pulls up 43 ft. 2 $\frac{1}{2}$ ins. from the centre. But for the fact that Grahame-White had difficulty in getting his engine to stop, he would have come to rest practically on the spot, indeed, everyone in the vicinity expected this to be the result.

Next in the field is Audemars on the little Clement-Bayard Santos Dumont type monoplane. He and his machine arrived overnight and his first intention is to take a look at the ground, but he comes down in rather bad ground without hurting either his machine or himself.

Rolls then attempts for the landing test with much the same tactics as Grahame-White, but runs 78 ft. 10 ins. past the bull.

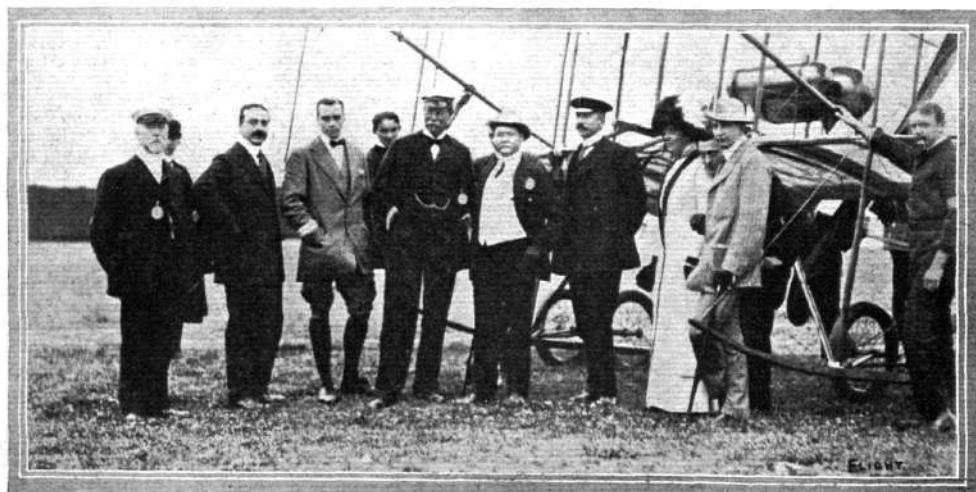
Dickson tries to come up in the teeth of the wind, but his landing is too much of a drop and the chassis struts are broken. The propeller also catches in the cross-ties of the chassis and pulls one of the wires under the valve rock-lever on one of the cylinders of his Gnome engine. The mishap suggests that attention should be paid in design to the placing of the wires so that they are not likely to foul a moving part when they sag. One fact that Dickson's descent demonstrated very clearly is the splendid buffer action of the Farman chassis. Hardly anything that could not be replaced



Plan of the arena for the Landing Prize, showing how the competitors attempted to land in the ring. The solid line represents the successful attempt of Grahame-White and the first successful attempt of Rolls. The dotted line shows how Rolls in a second attempt tried to dive into the ring from above the grand stands in order to pull up in the ring head to wind.

without trouble was broken, yet the machine certainly landed very heavily, and at first sight the apparent crumpling up of the members suggested that the chassis would be a wreck.

Each of these attempts pointed to one conclusion, that the position of the circle in respect to the wind made this particular competition extremely difficult and not a little hazardous. The wind was in the worst possible quarter for the pilots, for it was blowing obliquely towards the grand stands, and this precluded the possibility of alighting head on to the wind, except by flying over the grand stands first. This both Rolls and Grahame-White were disinclined to do, and both very skilfully brought off the alternative



AT BOURNEMOUTH AVIATION MEETING.—From left to right: Alderman Bickerstaff (Blackpool), Mr. W. E. Mandelock (Underground Railways, London), Mr. Claude Grahame-White, Sir Thomas Lipton, Sir Clifton Robinson, Mr. Alfred Bowker (ex-Mayor of Winchester), Lady Clifton Robinson, Mr. Seymour Joseph, Mr. Clifton Robinson, jun.

by finishing broadside on in a low flight, which just carried them skimming over the ground into the circle.

Evidently the disadvantages of this method impressed themselves on Rolls' mind, for he discussed the problem as his mechanics prepared the machine for another attempt before one o'clock, and ultimately decided to make an unofficial flight of investigation before launching on a second attempt for the prize.

By the time Rolls was aloft again the breeze had stiffened somewhat, and his preliminary short circuit of the course called for a fair amount of skill merely to maintain a straightforward flight. Having reached the fourth mark tower, Rolls turned outwards the grand stands and flew above them, so that he could approach the circle in the teeth of the wind. Evidently it was his intention to make a trial descent, for he executed a sharp dive towards the ring. His angle of descent was extremely steep, and necessarily so, for the circle had been drawn only about 50 yds. from the barrier, and it must have seemed to Rolls, at that altitude, immediately beneath him almost as soon as he had cleared the grand stands. Realising that his angle of descent was too exaggerated for safety, or possibly because he was struck by a wind-gust, Rolls suddenly put the elevator up to the end of its range in an attempt to bring the machine into a more reasonable attitude. But, just as he had apparently succeeded, something happened, and it fell vertically head-first to the ground.

And poor Charlie Rolls breathed his last as he lay there on the green grass by the débris of his machine surrounded by a cordon of saddened friends, who, joining hands, had formed a human wall to give him refuge from the blinking eye of the ubiquitous Press camera, to the operator of which no scene is sacred. He neither spoke nor moved before the end, and the secret of his fall was undisclosed. With the passing of the Hon. C. S. Rolls there has been removed from the actual field of flight one of its most brilliant supporters. Not only was Rolls an accomplished pilot, he was a man of scientific thought, and his interest in the problems of aviation extended to the minutest details of the art he was doing so much to encourage. Careful, with the forethought born of experience, he carried innumerable events to a successful issue, and he died as he lived, a sportsman. Motoring, ballooning, aviation, all owe much indeed to the pioneer work of Charlie Rolls.

Although the wrecked machine afforded little enough evidence of the exact cause of the disaster, the member which failed was probably one of the outrigger spars that carried the tail, and the fracture was evidently caused by excessive stress, incidental to the sudden nature of the attempt to forcibly pull the machine on to an even keel. To an observer who was closely watching the machine in side-view, the phenomena consisted of a sharp crack, followed by the canting of the tail plane. It was, of course, impossible to notice if the outrigger framework was out of truth, for, of course, the whole unfortunate incident occupied but the space of a moment. Apparently the action of the tail exerted a sudden lifting effect on the back of the machine, at any rate it up-ended with such appalling suddenness that it seems necessary to suppose that it was lifted from behind.

The propellers and most of the struts were intact, the latter owing to the flexible joints, also the tail plane itself seemed uninjured, although every outrigger spar that supported the tail was broken. The engine remained fast in the frame, but every cylinder was broken off by its flange and drawn almost clear of the pistons.

The outstanding lessons of the accident are twofold: one, which affects constructors, being that sudden actions of the control mechanism are capable of throwing very severe stresses on the outrigger framework, that does not ordinarily have to carry much

Research Scholarship Successful.

At the monthly meeting of the Governors of the Imperial College of Science, it was reported that the holders of the two Aeronautics Research Scholarships, at the National Physical Laboratory, had done excellent work, which was of real value to the laboratory. It was decided to extend the scholarships held by Messrs. Sillick and Bramwell for a further period to August 31st, 1911, and to award a third scholarship for the year 1910-11. In view of the success of the aeronautic lectures delivered at the Imperial College last year, it has been decided to invite Sir George Greenhill, F.R.S., Mr. H. R. Mallock, F.R.S., and Mr. Dugald Clerk, F.R.S., to give a similar course during the session 1910-11.

Flying from Europe to America.

APROPOS of the rumoured inauguration of airship services across the Atlantic, and other little schemes, Mr. C. Reginald Enock, F.R.G.S., of Valley Croft, Northwood, writes to the Press as follows:—

weight; and the other, which affects officials and competitors, being that the present comparative ignorance of the art on all hands makes it difficult for anyone to judge what is fair and unfair hazard in a trick competition. Everyone saw that the wind was in a difficult quarter, and every competitor naturally wished to pull up head to wind in the ring if he could, but probably no one fully realised quite what sort of manoeuvre would be necessary to accomplish this until Rolls made the attempt. It is quite possible that Rolls tried to accomplish a dive in a head wind of a kind that not even future experience will bring within the realm of fair chance. In natural sympathy with the disaster flying was at once stopped for the day.

Wednesday, July 13th.

Grahame-White was again first in the air on Wednesday morning at 11.15, and after a short trial flight, he took up Mr. Arnold White as a passenger, who expressed himself as very pleased with the sensation, which he described as a bit jumpy at times. As a matter of fact, the wind, as Grahame-White himself said, was not nice, and the machine had a periodic undulating motion that might be expected to make a first experience less peaceful than a dead calm. Cody brought out his new biplane at 12.15, which gives some idea of the intervals that the crowd have to be prepared to enjoy at flying meetings. The engine moreover proved to be anything but in good tune, and he returned to his shed. Rawlinson had his signal up for a while, but it was replaced by the luncheon interval sign at 1 o'clock. Shortly after 1.30, however, Morane suddenly brought out his racing Blériot and flew two fast rounds of the course. At 3 o'clock Dickson took his machine out also, and was up for a couple of circuits, while Grahame-White followed with a similar performance.

One of the visitors to the Aerodrome this afternoon was Mr. Horace Short, the well-known constructor of aeroplanes, who made an exhaustive examination of the débris of Rolls' French built Wright biplane. His theory is that the tail outrigger buckled sideways under the excessive vertical pressure and was struck by the propellers. This accounts for a small dent in each propeller blade, and in a piece of spar that was picked up some distance from the wreck; the tail outrigger was of very light construction and weak laterally, so it might well have bent sideways under an upward pressure. The clearance for the propellers was only a few inches, and it is well known that a sudden blow on a long bar of wood will often knock out a piece about 1 or 2 ft. in length. Some eyewitnesses have said that the rudder came unshipped in mid-air, but it was practically intact after the fall, and it seems fairly certain that up to the final drop the machine was under control.

Towards four o'clock the proceedings were enlivened by a series of passenger flights by Grahame-White, and an attempt by Audemars on the Santos-Dumont, who failed to get round. Dickson then made a trial flight, and Morane, on the racing Blériot, made a brief but splendid couple of circuits, commencing with a rapid ascent and terminating with a steep but graceful glide. This was followed by another ascent and another *vol plane*. Until ten minutes to six there had not been a single attempt for the prize events, but after Cecil Grace had brought out his Short-Sommer and flown two lengths, Morane ascended for altitude, and climbed in wide sweeping circles into the cloudless sky to a height of 4,100 ft., followed by a magnificent corkscrew glide. Barnes took out the Humber monoplane for a trial, and Dickson flew for slowest circuit, for which his best time was 3 mins. 13 secs. Morane then flew for speed, and finished five laps in 9 mins. 34 $\frac{1}{2}$ secs., with a fastest lap of 1 min. 53 $\frac{1}{2}$ secs., equal to a speed of 50.64 miles per hour. Audemars follows, with a fastest lap of 2 mins. 24 $\frac{1}{2}$ secs., which concluded the official flying for the day.

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"The most sensational feat of flying possible as yet remains unconsidered—that is, to fly from Europe to America. Impossible, I think I hear it said, but I would remind your readers that this could be accomplished with a greatest width of landless sea of only about 500 miles. Describing a great half-circle from the northern isles of Britain, *via* Iceland, Greenland, and Labrador (or the land north of it), an aeroplane would reach America; and 500 miles must soon be within a practical aero-radius.

"This would not be an 'all red route' exactly, but the two termini at least would be British. The advance of aviation reminds us that remote territories, hitherto unconsidered, may acquire a sudden value in the future, both political and geographical. The small islands scattered about vast expanses of ocean which have served as cable stations, or which are practically unknown parts of the British Empire, may prove invaluable as aero stations in the future, just as the high inaccessible slopes and plateaux of the Andes or the Himalayas may. I have spoken of this possible new aero highway from Britain to America in my new book 'Farthest West.' Perhaps from some enterprising source we shall have an offer of a £20,000 prize for such a flight."

THE 1910 RHEIMS WEEK.

IT would appear to be the fate of President Fallières to be something of a "hoo-doo" with regard to aeronautic meetings. It will



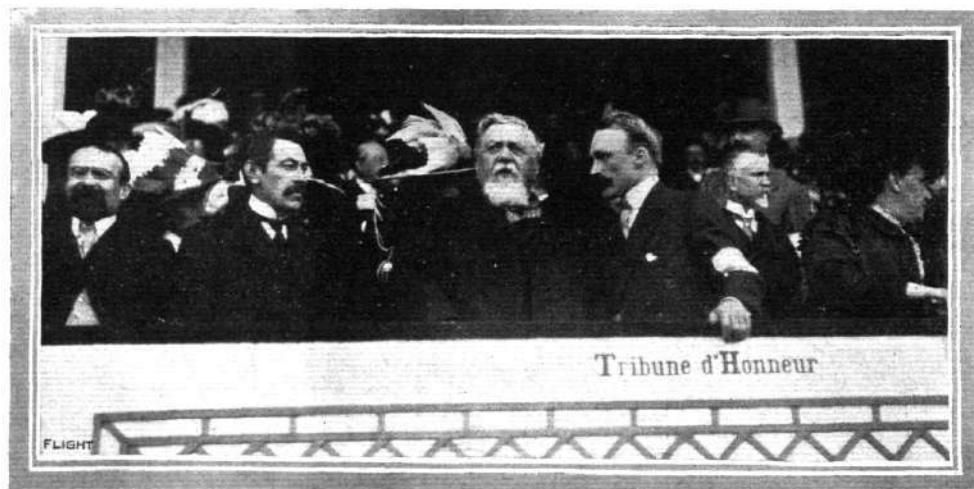
Olieblaegers, on his Blériot, the Long Distance and Time World's Record Holder.—At Rheims Meeting last week he broke record by flying 255·25 kiloms. in 2h. 39m. 28s., and on Sunday, the last day, he far surpassed this by remaining up for 5h. 3m. 5s., covering in that time 392·75 kiloms. (245 miles).

be remembered that last year when he made the official visit to Rheims the rain and wind prevented any flying until just as the

Presidential party was leaving, when Latham, Paulhan, and Bunau-Varilla made a big effort, and carried out short trials. This year a similar state of affairs occurred on Wednesday week. The President, accompanied by General Brun and several other Ministers, arrived at 5 o'clock, but it was not till half-past seven that Latham, de Baeder, and Weyman brought out their machines. The intervening time was spent in the examination of the various aircraft, and in watching two officers experimenting with military kites. De Baeder was the first in the air, but he only got as far as one mark post and then came down. Weyman, who followed him, managed one round, while Latham got round two circuits, the last-mentioned flight greatly interesting the President, who personally complimented the Antoinette pilot on his work.

The inactivity of Wednesday was more than made up for on the following day, when the sightseers had abundant return for their money, in spite of the fact that twice during the day a heavy storm broke over the ground, thus suspending operations for a time. The day's programme opened with the preliminary trials for the speed contest, in which Morane, Leblanc, Olieblaegers, Latham, Labouchere, Wagner, and Lindpaintner qualified for the semi-finals on Sunday. The best time for the 20 kiloms. was Morane's 13 mins. 46 secs., while the slowest was Lindpaintner's 25 mins. 56 secs. After lunch Latham, Labouchere and Olieblaegers started off for the distance record. The two former raced "neck-and-neck" for some time, with very little difference between their speed and that of the Blériot pilot. At 190 kiloms. Labouchere ran out of petrol and landed. Latham followed suit after covering 230 kiloms., Olieblaegers keeping on until he had covered 255 kiloms. in 3h. 39m. 29s., thus taking first place in the competition for the Michelin Trophy and beating Mr. Henry Farman's world's distance record. Up to 3 hours Latham had a slight advantage in the matter of speed and covered 215 kiloms. as against Olieblaegers' 212.

Notwithstanding this long flight, Latham about an hour and a half later brought out his machine again and started off for the altitude record. He had reached a height of about 900 metres when Morane took the air with the same object. The latter, in his Blériot, mounted very rapidly, and was soon flying above Latham, who then continued to rise, and eventually both were lost to sight among the clouds. Morane was the first to reappear and he planed down to earth. Half an hour later Latham came into sight again from the direction of Rheims, and on landing quietly explained that he had lost himself among the clouds, and had planed down until he saw the Cathedral beneath him. Morane's height, as recorded by the barometer, was 1,150 metres, while the surveying officers returned the height as 1,110 metres. In Latham's case the barometer registered 1,420 metres, while the height officially recorded was 1,380 metres, easily beating the then world's record. These performances naturally overshadowed the other flights of the day, but Leblanc on his Blériot beat the distance records for $\frac{1}{2}$, $\frac{1}{4}$, and 1 hour, and also the speed records for 50, 60, 70, 80, and



PRESIDENT FALLIÈRES AT RHEIMS MEETING.—From right to left are Mdme. Fallières, Marquis de Polignac, President Fallières, M. Briand, the Prime Minister.

90 kiloms., his speed being almost exactly 80 kiloms. an hour. N. Kinet, Fischer and Efimoff on Henry Farman machines all made lengthy flights, as did Legagneux on his Sommer, and Wagner on the Hanriot. The records broken were:—

Distance Records.

Distance.	Time.	Pilot.	Distance.	Time.	Pilot.
h. m. s.			h. m. s.		
5 kilos.	0 3 14 $\frac{1}{2}$	Morane	70 kilos.	0 53 32 $\frac{1}{2}$	Leblanc
10 " "	0 6 30	Morane	80 " "	1 2 22 $\frac{1}{2}$	Leblanc
20 " "	0 13 8	Morane	90 " "	1 11 15 $\frac{1}{2}$	Leblanc
30 " "	0 22 31	Olieslaegers	100 " "	1 16 11	Leblanc
40 " "	0 30 11	Olieslaegers	150 " "	2 3 49 $\frac{1}{2}$	Olieslaegers
50 " "	0 37 50 $\frac{1}{2}$	Leblanc	200 " "	2 46 2	Latham
60 " "	0 45 28 $\frac{1}{2}$	Leblanc	250 " "	3 34 53 $\frac{1}{2}$	Olieslaegers

Time Records.

Distance.	Time.	Pilot.	Distance.	Time.	Pilot.
hrs.			hrs.		
20 kilos.	1/4	Leblanc	145·250 kilos.	2	Olieslaegers
40 " "	1/2	Leblanc	215 kilos.	3	Latham.
80 " "	1	Leblanc			

On Friday the doings at the Bétheny aerodrome were to some extent overshadowed by the accident to Baroness de la Roche. She was flying at a good height when her biplane dropped like a stone to the ground. She was very badly injured, and it was at first feared that she would not recover, but the latest reports are more favourable. As to the cause of the accident that is at present unexplained. The Baroness attributed it to someone flying over her too closely, and there was a hostile demonstration against Lindpaintner. He was, however, exonerated by the Committee. The day's competition was for the longest distance prize. Latham was one of the first to start, and he was followed by Olieslaegers. The latter eventually made the best performance, covering 225 kiloms. in 2h. 55m. 53 $\frac{1}{2}$ s., while Latham completed 160 kiloms. in 2h. 9m. 3 $\frac{1}{2}$ s. In point of distance, however, Cattaneo took second place with his Blériot, by covering 180 kiloms. Other good performances were Labouchère (125 kiloms.), N. Kinet (110 kiloms.), Lindpaintner (90 kiloms.), Legagneux (90 kiloms.). In the course of his long flight Olieslaegers reduced the time for 150 kiloms. to 1h. 54m. 54 $\frac{1}{2}$ s., and for 200 kiloms. to 2h. 35m. 18s.

In the competition for the daily speed prize Morane reduced the ten mile record to 6m. 35 $\frac{1}{2}$ s., and Leblanc, later, reduced it still further to 6m. 33 $\frac{1}{2}$ s., while he covered 5 kiloms. in 3m. 12s.

Saturday saw the duration, distance, and passenger records beaten; the former by Labouchère and the latter by Aubrun and Mamet on their Blériot. The Antoinette pilot in his long flight which lasted 4 hrs. 37 mins. covered 340 kiloms. In the passenger competition Aubrun carried a passenger for 2h. 9m. 7 $\frac{1}{2}$ s., during which time he traversed 137·125 kiloms., while Mamet took up two passengers besides himself for 92·75 kiloms. The record for ten kiloms. with one passenger fell to Ladouge who, on the



The Baronne de Laroche, whose unfortunate accident on her Voisin somewhat marred last Friday's doings at the Rheims Meeting.—Latest accounts report the Baroness as out of danger.

Goupy biplane, covered the distance in 8 mins. 14 $\frac{1}{2}$ secs. The times for the various distances were as follows:—

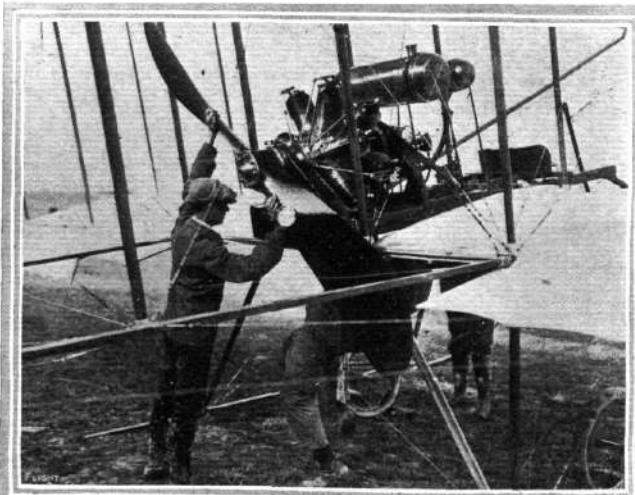
	Aubrun 1 pass.	Mamet 2 pass.	Aubrun 1 pass.	Mamet 2 pass.
	h. m. s.	h. m. s.	h. m. s.	h. m. s.
10 kilos.	—	0 10 18 $\frac{1}{2}$	60 kilos.	0 57 58 $\frac{1}{2}$ 1 3 20 $\frac{1}{2}$
20 " "	0 19 39 $\frac{1}{2}$	0 21 14	70 " "	1 7 31 $\frac{1}{2}$ 1 14 36 $\frac{1}{2}$
30 " "	0 29 10	0 31 53 $\frac{1}{2}$	80 " "	1 16 59 $\frac{1}{2}$ 1 23 33
40 " "	0 38 51	0 42 32 $\frac{1}{2}$	90 " "	1 26 33 1 36 4
50 " "	0 48 28	0 52 30 $\frac{1}{2}$	100 " "	1 36 6

For the daily height prize Morane reached a height of 741 metres, while de Baeder went up to 299, Nieuport to 226 metres. For the distance competition, the longest flights apart from Labouchère's were Tetard (185 kiloms.), Cattaneo (150 kiloms.), Weyman (140 kiloms.).

Sunday was the last day, and the programme opened with the final for the speed prize. The seven competitors were started off at minute intervals, Morane being the first to leave the mark. He put up the best performance, covering the 20 kiloms. in 12 mins. 49 $\frac{1}{2}$ secs. Three Blériots qualified for the final, of which the result was: Morane, 12 mins. 45 $\frac{1}{2}$ secs. (world's record); Leblanc, 12 mins. 55 $\frac{1}{2}$ secs.; Olieslaegers, 13 mins. 15 secs.

After that the principal event of the day was the cross country flight for the Ephrussi Cup in which the competitors started three at a time. They had to travel round a steep at Vitry le Rheims, thence round a factory chimney at Bayancourt and back to the starting point. There were eight competitors, and the first one home was Wagner on his Hanriot, but he started earlier than Leblanc who was the winner, the latter's time being 19 mins. 17 secs. The other times will be found in our table.

While the preparations for this contest were in progress, Olieslaegers launched his machine for pulling down the world's duration and distance records. He handsomely achieved his object by remaining aloft for 5h. 3m. 5s., during which he covered 392 kiloms. (245 miles), although only 320 kiloms. counted for the distance prize, as the remainder was flown after the official closing time.



Mr. Henry Farman's biplane, as fitted with a 100-h.p. Gnome engine, at Rheims Meeting last week.

The meeting was thus brought to a close with a most remarkable performance. In our table we have summarised the chief results of the meeting.

RHEIMS RESULTS.

Grand Prix de Champagne (50,000 francs), Team Prize.

1. Antoinette	...	...	2,601	kiloms.
2. Blériot	...	...	2,303	"
3. H. Farman	...	...	1,902	"
4. Sommer	...	...	1,269	"

Prize for the Longest Flight (20,000, 5,000, 3,000, 2,000 francs).

		h.	m.	s.
1. Labouchere (Antoinette), 340 kiloms.	...	4	37	0 $\frac{1}{2}$
2. Olieslaegers (Blériot), 225 kiloms.	...	2	55	5 $\frac{1}{2}$
3. Tétard (H. Farman), 185 kiloms.	...			
4. Cattaneo (Blériot), 180 kiloms.	...			

Gordon-Bennett Eliminating Trials.

		h.	m.	s.
1. Leblanc (Blériot), 100 kiloms.	...	1	19	13 $\frac{1}{2}$
2. Latham (Antoinette), 100 kiloms.	...	1	24	58 $\frac{1}{2}$
3. Labouchere (Antoinette), 100 kiloms.	...	1	25	24

Height Prize (10,000 and 5,000 francs).

1. Latham (Antoinette)	...	...	1,384	metres.
2. Chavez (Blériot)	...	...	1,150	"
3. Morane (Blériot)	...	...	750	"
4. De Baeder (H. Farman)	...	...	494	"
5. Cattaneo (Blériot)	...	...	410	"
6. Tétard (H. Farman)	...	...	403	"
7. Lindpaintner (Sommer)	...	...	345	"
8. Wagner (Hanriot)	...	...	293	"
9. Nieuport (Nieuport)	...	...	91	"

Military Officers' Prize (2,500 and 2,500 francs).

		h.	m.	s.
1. Lieut. Cammerman (H. Farman), 50 kiloms.	...	46	50	
2. Lieut. Fequant (H. Farman), 50 kiloms.	...	47	40	

Ladies' Prize (5,000 francs).

1. Baronne de Laroche (Voisin)	5	kiloms.
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Passenger Prize (5,000 francs), with one passenger.

		h.	m.	s.
1. Aubrun (Blériot), 137.125 kiloms.	...	2	9	7 $\frac{1}{2}$



Hubert Latham at the wheel of his Antoinette before his start for his record high flying and trip over Rheims Cathedral during the Aviation Meeting last week.



Marcel Hanriot, the "Boy Aviator," at Rheims Aviation Meeting on his Hanriot monoplane.

With two passengers.

1. Mamet (Blériot), 92.750 kiloms.	—
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Speed Prize (10,000, 3,000, 2,000 francs), 20 kiloms.

		m.	s.
1. Morane (Blériot), speed = 106.508 k.p.h.	...	12	45 $\frac{1}{2}$
2. Leblanc (Blériot)	...	12	55 $\frac{1}{2}$
3. Olieslaegers (Blériot)	...	13	15

10 kiloms.

		m.	s.
1. Morane (Blériot)	...	5	42 $\frac{1}{2}$
2. Labouchere (Antoinette)	...	6	31
3. Leblanc (Blériot)	...	6	33

5 kiloms.

1. Morane (Blériot)	...	3	15
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Michel Ephrussi Prize (10,000 francs).

1. Leblanc (Blériot)	...	19	14 $\frac{1}{2}$
2. Wagner (Hanriot)	...	20	57 $\frac{1}{2}$
3. Nieuport (Nieuport)	...	23	22 $\frac{1}{2}$
4. Pischoff (Werner)	...	24	46 $\frac{1}{2}$
5. Lindpaintner (Sommer)	...	25	51 $\frac{1}{2}$
6. Hanriot (Hanriot)	...	26	35
7. Aubrun (Blériot)	...	29	34 $\frac{1}{2}$

Michelin Cup (20,000 francs).

1. Olieslaegers (Blériot, Gnome motor), 392.750 kiloms.	...	5	3	5 $\frac{1}{2}$
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World's record for distance and duration.

Height Totalisation Prize (3,000, 1,500, 500 francs).

1. Latham (Antoinette)	...	8,093	metres.
2. De Baeder (H. Farman)	...	6,460	"
3. Morane (Blériot)	...	4,336	"
4. Chavez (Blériot)	...	2,217	"
5. Cattaneo (Blériot)	...	1,162	"
6. Tétard (H. Farman)	...	990	"
7. Lindpaintner (Sommer)	...	651	"
8. Wagner (Hanriot)	...	566	"
9. Nieuport (Nieuport)	...	228	"

Distance Totalisation Prize (15,000, 8,000, 4,000, 3,000 francs).

1. Olieslaegers (Blériot), 19h. 11m. 45s.	1,693	kiloms.
2. Weymann (H. Farman)	1,254'56	"
3. Fischer (H. Farman)	1,160'52	"
4. Labouchere (Antoinette)	1,154'25	"
5. Latham (Antoinette)	926'5	"
6. Legagnoux (Sommer)	875	"
7. Thomas (Antoinette)	866'25	"
8. N. Kinet (H. Farman)	677'655	"
9. Cattaneo (Blériot)	595	"
10. Lindpaintner (Sommer)	539'25	"
11. Hanriot (Hanriot)	539	"
12. Efimoff (Sommer)	341'5	"
13. Wagner (Hanriot)	315	"
14. Bouvier (Sommer)	314	"
15. Aubrun (Blériot)	315	"
16. Tétard (H. Farman)	292'115	"
17. Wagner (Hanriot)	290	"
18. Van den Born (H. Farman)	154'5	"
19. Daillens (Sommer)	153'025	"
20. Ladouge (Goupy)	144'675	"
21. Wachter (Antoinette)	142'625	"
22. Martinet (H. Farman)	135'65	"

23. Leblanc (Blériot)	110	kiloms.
24. Bunaud-Varilla (Voisin)	100'25	"
25. Pischoff (Werner)	70	"
26. De Baeder (H. Farman)	65	"
27. Morane (Blériot, 100-h.p. Gnome)	50'25	"
28. Christiaens (H. Farman)	50'25	"
29. Bathiat (Breguet)	50	"
30. Colliex (Voisin)	45	"
31. Nieuport (Nieuport)	35	"
32. De Petrowski (Sommer)	30	"
33. Crochon (Sommer)	25'25	"
34. Verstraeten (Sommer)	25	"
35. Alfred Frey (H. Farman)	25	"
36. Andre Frey (Sommer)	25	"
37. Morane (Blériot)	25	"
38. Cheuret (H. Farman)	20	"
39. De Mumm (Antoinette)	14'625	"
40. Metrot (Voisin)	10'25	"
41. Raymonde de Laroche (Voisin)	5	"
42. Balsan (Blériot)	5	"
43. Noel (Blériot)	5	"
44. Chavez (H. Farman)	5	"
45. Delatang (Nieuport)	5	"
46. Pecquet (Sanchez-Besa)	5	"

NOVEL MACHINES AT RHEIMS.

BY HANDLEY PAGE.

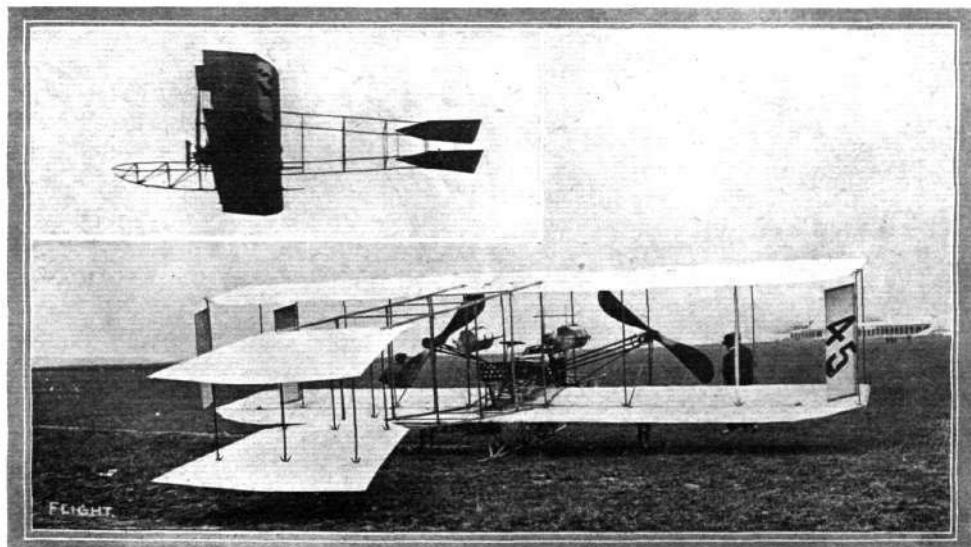
THE Rheims Aviation Meeting of 1910 has been undoubtedly a triumph for the monoplanes, the Antoinettes and the Blériots carrying all before them, with the Hanriots good runners-up. The Antoinettes were of the usual type, but the 50-h.p. Gnome Blériots had flatter planes than those in the cross-Channel type, the "dip" at the front edge being much less.

Of the other monoplanes, the Werner, driven by Pischoff, and the Nieuport are distinct types of their own. The main planes of the Werner machine are carried on the top of an open fuselage, which tapers to the tail plane in the rear. The engine is carried low down in the front, and drives through a long shaft, sprocket wheels and chain, a large propeller fixed at the rear of the plane. Below the plane also, and at the back of the engine, are the two seats for pilot and passenger. The whole machine is brightly finished with a glossy aluminium paint that would make one feel chary of sitting in it with new clothes on. The aeroplane flies well, and seemed to turn the corners fairly easily, in spite of its very low centre of gravity, which should make this somewhat difficult. The "tip-up" of the wing-ends is very noticeable when in flight.

The Nieuport monoplane, with its rectangular-shaped, covered-in body, has the engine very neatly mounted in the "bows." The front of the body, about 2 ft. square, is finished quite flat and end-on to the wind, but the main spars are carried through and bent, so that the top and bottom ones on either side meet. The horizontal opposed two-cylinder motor used has a pressed steel ring fitting on each cylinder, and these rings fix on to the projecting ends of the main spars. The latter are bound round with tape to strengthen them. As in some of the Blériots, there is a small inspection-door at the side of the body.

The "spring axle" arrangement has been adopted for the chassis. The body is carried in three steel tube V's with parallel tops, the parallel parts at the side of the body, the points of the V's being fixed to a long tubular skid below the body. The axle, made up of three "leaves," is about 5 ft. long, and carries at each end two wheels about 15 ins. in diameter. It is fixed in a small fitting at the bottom of one of the upright V tubes.

Of the biplanes, the Savary, Goupy and Breguet have several new features.



SAVARY BIPLANE PILOTED BY FREY AT RHEIMS MEETING.—Two tractor screws are employed, and a chain-driven 8-cyl. E.N.V. engine. Inset Frey is seen in the air on the Savary biplane.



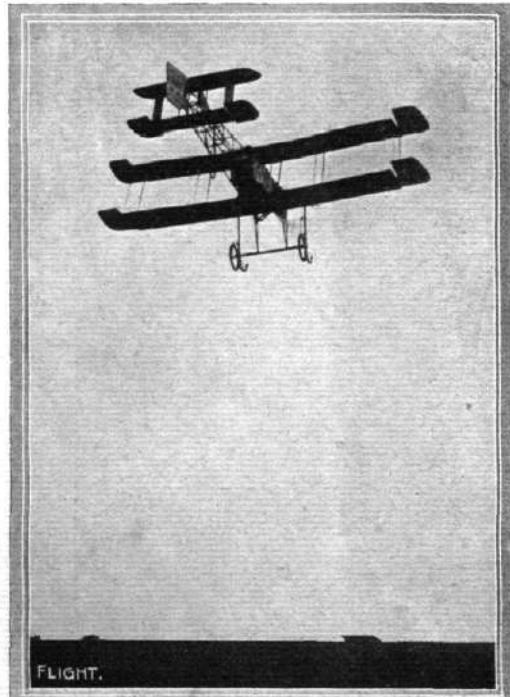
The Nieuport monoplane, which was successfully flown by its constructor at Rheims Meeting.—It is fitted with a 20-h.p. 2-cyl. Darracq engine. Inset the Nieuport monoplane in flight.

The Savary has a triangular-shaped open body, something like the skeleton of a boat, fitted underneath the planes, and extending about 6 to 8 ft. in front of them. This acts as a skid in landing, and to it the wheel and spring arrangement is fixed. The engine is on top of it, at the front edge of the lower plane, and drives through chains a propeller on either side, in front of the planes. The reduction in speed did not appear to be—judging by the size of the

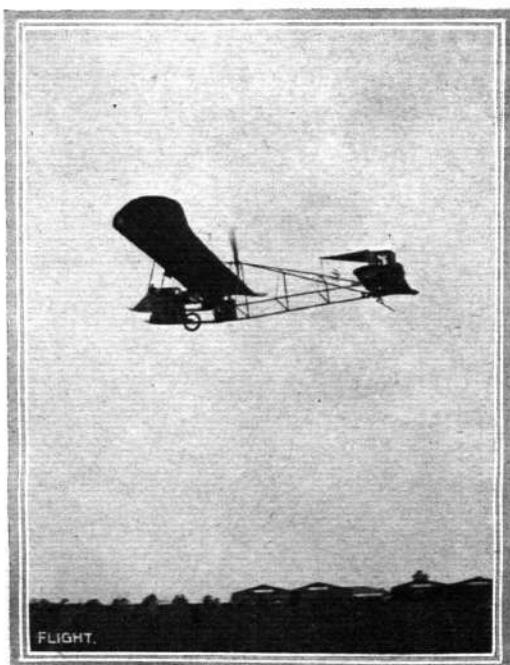
chain wheels—as large as might have been to give the best results with the propellers.

The tail at the end of framework projecting at the rear has a horizontal plane only. The machine is steered by vertical planes at either end of the main plane. Two of these are hinged at each end at the same point, and open out at an angle with one another when they are used.

The Goupy biplane has already been illustrated and described, its chief feature being that the top plane is not vertically above the



The Goupy biplane, piloted by Ladougne, at the Rheims Meeting.



De Pischoff in flight on the Werner monoplane during the Rheims Meeting.

lower one, but in advance of it. The tail is constructed on the same lines. The ends of the main planes are hinged like those of a Bleriot elevator tail, and these are used instead of warping the planes themselves.

The Breguet is another biplane which is not very well known. It is built up like a monoplane, with no struts or wires between the upper and lower planes, and has a covered-in body. The engine, fitted in front of the body, drives a single tractor screw, about 9 ft. 8 ins., through gearing. The tail has a universal joint fitting, so that it can be used as an elevator or rudder. All the tubes forming the chassis are covered with fabric, stretched round the tube in front and carried back several inches behind it to a thin edge,

* * *

the idea presumably being reduction of head resistance. Last year the Breguet machine came down on its head, smashing up, and this year it repeated its performance, this time without any serious damage.

There were practically no alterations to the Farman or Sommer machines, but the new Voisin machine is very different to the older type. It is nearly all steel tubing. The front spar is about $1\frac{1}{2}$ in. No. 16 gauge, and the back one about $\frac{1}{2}$ in. The struts, also steel tube, are bolted through the main spars. The planes have wooden ribs, and the fabric is stretched over the front edge from front to back; there it is laced over to a wire stretched along the rear edge. The machine has the old type of elevator and chassis, but a monoplane tail like the Sommer.



OFFICIAL NOTICES TO MEMBERS

Bournemouth International Aviation Meeting.

THE news of the fatal accident to the Hon. C. S. Rolls while flying at Bournemouth, on Tuesday, the 12th inst., was received at the Royal Aero Club with the deepest sorrow.

The Committee.

Owing to the Bournemouth Aviation Meeting, the usual Committee meeting was not held this week.

**Point-to-Point Balloon Race for Cup presented by
Mr. A. Mortimer Singer.**

The Point-to-Point Balloon Race for the cup presented by Mr. A. Mortimer Singer took place from the Hurlingham Club, S.W., on Saturday, July 2nd, 1910. The spot selected for the descent was Langford Railway Station, Essex, and the cup was won by Mrs. John Dunville, who landed near Cold Norton Station, 5 miles from Langford.

The official placings are as follows :

1. Mrs. John Dunville descended 5 miles from Langford Railway Station.
2. Hon. Mrs. Assheton Harbord descended $5\frac{1}{2}$ miles from Langford Railway Station.
3. Major Baden-Powell descended $6\frac{1}{4}$ miles from Langford Railway Station.

Balloon Race at Hurlingham.

The Point-to-Point Balloon Race for the cup presented by Mr. Griffith Brewer will take place at Hurlingham Club, Fulham, S.W., on Saturday, the 23rd July, 1910, at 3 o'clock. Entries will close on Wednesday, the 20th July, at 5 p.m. Entrance fee 10s.

The rules governing the race can be obtained from the secretary.

Members of the Royal Aero Club will be admitted to the Hurlingham Club free on presentation of their Royal Aero Club membership cards.

PROGRESS OF FLIGHT. ABOUT THE COUNTRY.

(NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

Aeroplane Building and Flying Soc. (8, MANCHESTER ST., W.).

THE first monthly meeting of this Society was held on Wednesday, July 6th, at 26A, Hereford Road, at 9 p.m. The committee reported that they had secured the refusal of a workshop in Hammersmith and asked for power to lease it for the use of members. This was agreed to, and it was stated that the place would probably be ready for business in a fortnight's time. The secretary reported the receipt of several more applications for membership which had been dealt with. One of the members suggested the formation of a library of standard works on aviation and asked for suggestions as to suitable books. One of the first mentioned was the "Flight Manual," and some members offered to make the Society a present of some of the books. It was suggested that a feature of future monthly meetings should be the reading of a paper by one of the members, and this suggestion was referred to committee.

A difficulty was raised on the subject of work, one of the members asking how he could get on the Society's credit account supposing he was not able to actually work at the bench and yet desired to have some of his own ideas carried out. It was pointed out that there was room for all kinds of work in the Society, and it

The Club Balloon, "Aero Club IV," will follow the race. Members wishing to make the ascent are requested to notify the Secretary at once. The fee will be £5 per person, and the three seats available will be allotted in order of application.

Eastchurch Flying Ground.

Members visiting the flying ground at Eastchurch are requested to have with them their membership cards, as admission to the ground can only be obtained on production of same.

Members wishing to erect sheds are requested to communicate with the Secretary of the Royal Aero Club.

Railway Arrangements.—The following reduced fares have been arranged with the railway company for members visiting Eastchurch:—

1st Class return, 8s. ; 2nd Class, 6s. 6d. ; 3rd Class, 5s.

Tickets available for one month from date of issue.

Members desiring to avail themselves of these reduced fares are required to produce vouchers at the booking offices. Vouchers can be obtained from the Secretary of the Royal Aero Club. Trains leave Victoria, Holborn, or St. Paul's.

For the convenience of Members, the best train is the 9.45 a.m. from Victoria, arriving at Queenborough 10.55. At Queenborough change to the Sheppey Light Railway for Eastchurch, which is $\frac{1}{2}$ -mile from the flying ground.

Aviation Lantern Slides.

The Royal Aero Club have now acquired a large collection of lantern slides dealing with aviation, and members can hire these at a fee of £1 1s. for a period not exceeding three days. They include all the latest machines and pictures taken at aviation meetings in England and abroad. Application for hire should be made to the secretary.

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

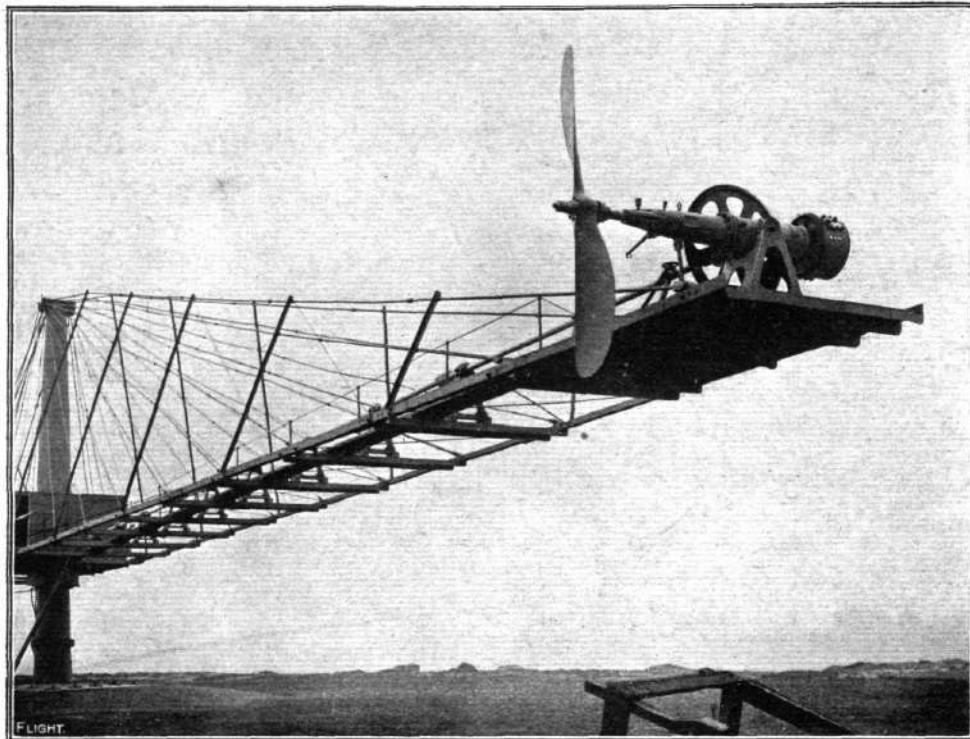
was hardly possible to imagine the case of a member who was unable to do anything at all.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

ON Wednesday, July 6th, Messrs. B. S. Varnals and W. Jones, of Gamage's, gave, by request, a demonstration of kite flying at the Aerial Garden Rendezvous, Crystal Palace, and created so much interest that they were asked to give another demonstration on Thursday, the 7th. There was a very strong wind blowing on Wednesday, estimated by Mr. Grahame-White's staff at 40 miles an hour. Mr. W. Jones took photographs from a height of 500 ft., and demonstrated the use of kites for aerial photography. The kites and banners were in the air for over five hours, the height attained being over 3,000 ft. The kite around which the chief interest centred was a 44 sq. ft. quadroplane, and it required six persons to haul it in.

There will be exhibitions of kite flying, as well as model competitions, on Wednesdays, July 20th and 27th, and model makers should enter for the splendid Silver Challenge Trophy on July 29th, given by Mr. A. W. Gamage. Already this promises to result in quite a big "field."

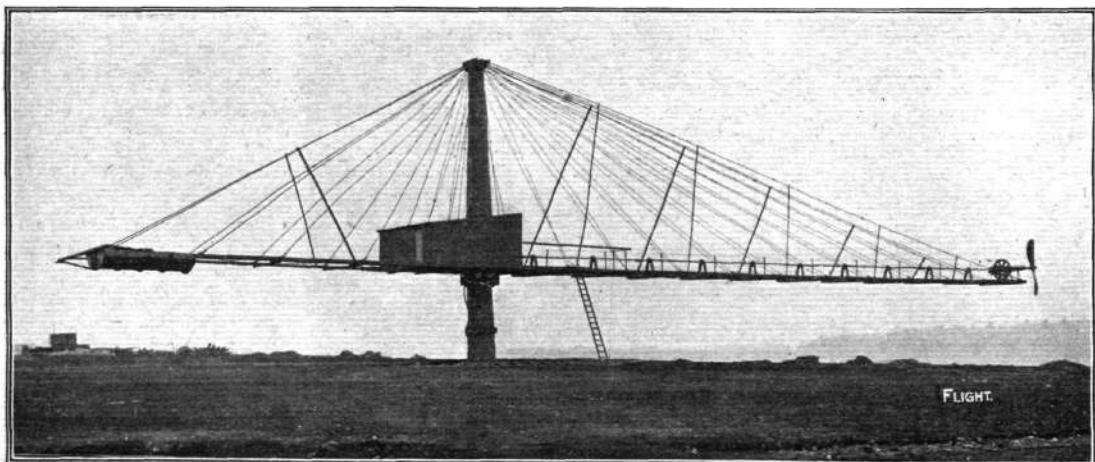
THE GREAT WHIRLING TABLE AT BARROW. AN EXAMPLE OF BRITISH ENTERPRISE.



View showing a propeller in place for testing on the whirling table.

Two of the most interesting and at the same time important photographs that we have yet had occasion to publish are reproduced herewith in the form of an illustration of a large whirling table that has been erected at Barrow-in-Furness by Messrs. Vickers

Sons and Maxim. The immediate object of the apparatus is the testing of propellers for the airship that this firm is constructing for the Admiralty, but although it is extremely satisfactory to know that such pains are being taken to ensure a high degree of efficiency



General view of the great whirling table erected by Vickers Sons and Maxim at Barrow for the testing of full-sized propellers under the conditions of flight.

in connection with the nation's dirigible, yet it is of even more far-reaching importance to learn that this plant is to be available for the testing of propellers constructed by other makers.

We have always urged the necessity of testing propellers under the conditions of flight if any reliable data are to be established on which the science of propeller design can hope to secure a really sound footing. Of the alternative methods of reproducing the conditions of flight the whirling table is that which commends itself as preferable on many grounds. A certain amount of experience has already been obtained with whirling tables on a small scale, for it will be remembered that Prof. Langley conducted all his original experiments in aerodynamics with this kind of appliance, while Sir Hiram Maxim used a still larger device of the same character in the early days of his interest in aviation. The work of these pioneers is necessarily restricted to the use of models, as is also the whirling table installed at the Government Flight Office. The machine at Barrow, however, is for testing full-sized propellers, and is, so far as we are aware, the only one of its kind that has ever been constructed.

It is very evident that an apparatus of this sort requires a tremendous amount of room, and is very expensive to erect, so that only a firm with the necessary property could give effect to such an enterprising undertaking. As the illustrations show, the propeller to be tested is mounted at right angles to the extremity of the long arm of a great cantilever, which is supported on a vertical column. The propeller is operated through bevel-gearing and a line of shafting by a 100-h.p. engine situated in a cabin that is built about the central column. The propeller is mounted at a radius of 110 ft. from the axis of the column about which the entire apparatus revolves under the thrust of the propeller. In order to vary the speed of flight, resistance planes are mounted on the arm, and a car is rigged up in front of the propeller so as to reproduce as accurately as possible the exact conditions of practical use. The propeller is mounted on a sliding shaft that works against a spring thrust abutment, and a measurement of the thrust is obtained by means of



THE BRITISH ARMY AIRSHIPS.

"Beta" Over London.

— A SURPRISE visit was paid to the Metropolis on Tuesday by the Army airship "Beta," which, after circling round the dome of St. Paul's Cathedral, returned safely to its "dock" at Farnborough. Passing over the offices of FLIGHT about a quarter past six, the dirigible in a few minutes was hovering over the Cathedral, and well within a quarter of an hour had disappeared and returned and been swallowed up by the "houses in between" on its homeward journey.

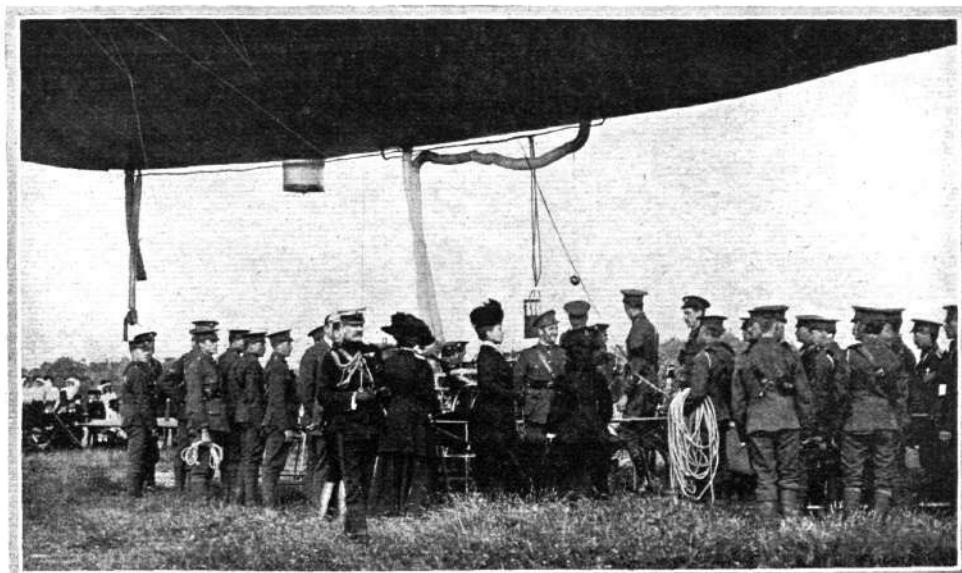
The airship, carrying Lieut. Ridge, Lieut. Broke-Smith, and

suitable instruments situated in the aforementioned cabin, where all the observations are made.

In addition to driving the propeller forwards, provision has also been made for testing its efficiency when going astern. The accuracy of the apparatus is such that the thrust can be measured to within 1 per cent. for a total thrust of 500 lbs. By means of a special device the circular flight-path of the propeller has been compensated.

The construction of the whirling table itself affords an interesting example of engineering skill. The point to which the suspension rods converge is a steel bracket, to which is fastened a steel tube constructed of rolled steel plates butt jointed and riveted. At the head of this tube is a ball bearing that supports the entire weight of the moving portion of the structure. A guide for the bottom end is supplied by four horizontal rollers carried on cast-iron brackets bolted to the lower end of the steel tube and rolling on a turned belt on the column. The arm proper is built up of steel angles, and at the extreme end of the arm is a steel platform carrying the bracket and bevel-gearing for the propeller. The other end of the arm terminates in a sheet iron ballast tank at a radius of 56 ft., by means of which it is possible to accurately balance the whole structure. The revolutions of the propeller can be varied between 500 to over 1,000 r.p.m., and the speed of flight may attain, if necessary, 70 miles an hour.

Now that we have such an apparatus in England available for the testing of propellers it is obviously up to the builders of aeroplanes and designers of propellers to take advantage of the opportunity for establishing their claims to superiority. We believe that the propeller business is capable of being developed into a very important and to a large extent independent section of the aeroplane industry by those who are enterprising enough to give serious study to every aspect of the subject, and we hope that the result of the erection of the great whirling table at Barrow will result in a very material advance in the science of propeller design.



KING GEORGE AND QUEEN MARY VISIT THE ARMY AIRSHIP FACTORY AT ALDERSHOT ON MONDAY.—In our photograph the mechanism of the airship is being explained to Her Majesty.

AIRSHIP NEWS.

Army Airships Inspected by the King and Queen.

ON Monday afternoon, during the time H.M. the King was at Aldershot, the two army airships, "Beta" and "Gamma," were taken out and cruised over from Farnborough. The former then returned to her shed, where she was closely examined by His Majesty, who rode over from the camp. The Queen, who had motored over to Farnborough to see the dirigibles, also had the mechanism of the "Beta" explained. The "Gamma" had some little engine trouble, and descended at Crookham, but later returned to the balloon factory.

On Wednesday afternoon both airships were out, the "Gamma" cruising over the vicinity of Guildford, while the "Beta" started off from Farnborough in the direction of Bournemouth.

To Cross the Atlantic by Airship.

HAVING given up his Polar expeditions, Mr. Wellman and his companion Mr. Vaniman are now proposing to cross the Atlantic in their dirigible "America," which it will be remembered was on view at the Olympia Aero Show of last year. Since then the envelope has been increased in length to 228 ft., and the greatest diameter to 52 ft. The car has also been rebuilt, being now 156 ft. in length, and is fitted with three engines. A start it is proposed

should be made from New York at the end of August or beginning of September, and it is anticipated that London will be reached in from six to ten days. The whole scheme is under the joint auspices of the London *Daily Telegraph* and the *New York Times*.

An Aerial Ferry.

A ZODIAC dirigible has just been imported into America with the object of maintaining a ferry service during the summer between Narragansett Pier and Newport, Rhode Island, a distance of 11 miles. Airship docks have been built at each of those points and equipped with hydrogen apparatus. The dirigible is 100 ft. long, and can carry half a dozen passengers for two hours if necessary.

Wireless Telegraphy for Dirigibles.

ALTHOUGH, as we recorded last week, the German Army airship "M III" was unable to reach its destination at Gotha, it is reported that the wireless telegraphy experiments were very successful. According to Major Gross almost immediately after leaving Berlin communication was made with Gotha, 160 miles away. Previously the longest distance over which a wireless message had been received by an airship was 50 miles.

CHELTENHAM TO CARDIFF BY AIRSHIP.

By W. J. B.

AN important advance in the history of the dirigible was made on Monday last, when Mr. E. T. Willows, of Cardiff, successfully piloted his airship "Willows II" from Cheltenham to Cardiff, a distance of 62 miles.

The rapid progress made by aeroplanes in the last few months, and the recent sensational flights in them in this country, have served to turn the attention of the public from the dirigible to the heavier-than-air machine; but many who have made a careful study of mechanical flight realise that there are many problems which cannot be solved by means of a machine which derives its buoyancy from its motion through the air, and that there is an extensive field of research and a wide sphere of activity open to the airship. Amongst the number of those holding this view are Mr. Willows and his father, who for some years have been experimenting at Cardiff. "Willows No. I" was built five years ago, and provided her designer with his experience, purchased, as experience always is, at the cost of much time and money. "Willows No. II" is the outcome of the knowledge gained on the first ship. Hitherto Mr. Willows has only made short circular trips round Cardiff, not exceeding 10 or 15 miles each. At the invitation of the Cheltenham Carnival Committee, however, he agreed to visit the "Garden Town" and if possible make a few trips from the specially erected hangar in Montpellier Gardens. Everything was ready last Saturday, except the weather, and although the day was generally fine the wind was gusty. A short flight was, however, made in the evening, and Mr. Willows then stated that if the meteorological conditions were favourable on Monday evening he would attempt to fly back to his shed on Monday. The afternoon of that day found Mr. Willows on the top of Cleeve Hill, 800 feet above the town, watching the weather and testing the wind. Conditions being favourable he motored down to the Gardens and prepared for flight. Every detail of the ship, which had already been carefully examined by his assistant, Dunford, was scrutinised by Mr. Willows, who leaves nothing to chance. A start was made at 8 o'clock under perfect conditions, a 12-mile breeze blowing straight towards Cardiff. The details of the voyage have already appeared in the Press, but these notes from a correspondent who followed—and sometimes led—Mr. Willows in a motor car should give added interest to the record. The balloon had been fully inflated before starting, and the temperature of the hangar was normal. Very little gas was lost on the journey, but the low temperature experienced high up, and after sunset, had caused a considerable reduction in volume by the end of the journey. There was,

however, sufficient ballast on board to allow for a much greater loss of buoyancy. The petrol tank only holds 4 gallons, and this was not exhausted at the end of the trip, so that the reserve 2-gallon can was not required. The engine ran beautifully. She was started up at 7.57 and stopped at 11.50, and was then at quite a comfortable temperature. Apparently she could have run another four hours. Frequently the occupants of the cars could hear the steady beat of the engine and the rattle of the exhaust. It was very pretty to watch the ease with which the pilot circled. Dean Close School and Gloucester Cathedral gave opportunities for these evolutions, which drew enthusiastic applause from the spectators below. The patent swivelling propellers acted perfectly, and it was marvellous to see the airship ascending or descending at an angle of 1 in 7 or 8. The control of this mechanism is as ingenious as it is simple, and will undoubtedly prove a valuable feature. Perhaps the most skilful piece of airmanship was seen at Aylburton, where Mr. Willows, Senr., was awaiting his son. The country is hilly, and the aviator was flying high, when he saw the glare of his father's acetylene head-lamp. He came rapidly down to within 100 feet of the ground, circled over the party, megaphoned his instructions, and rose swiftly again.

Before the cars got fairly away again Mr. Willows was half a mile away and about 400 feet up. By this time the gathering dusk had obliterated all detail from the landscape, and Mr. Willows depended for guidance on the motors far below. This did not prove very satisfactory, and he frequently took his course by the moon or the lights of towns. The rush through the night was exhilarating enough for the occupants of the cars, but Mr. Willows confessed later that for him there was some monotony! Although the evening was chilly, he said he did not at any time feel cold. It seemed straightforward work as long as the balloon was en route, but the landing in the dark was necessarily attended with some risk. Mr. Willows, however, who is surprisingly cautious for so young a man—he achieved the flight on his twenty-fourth birthday—maneuvered most skilfully, and eventually had the machine safely housed a little after midnight. Then his friends, who had accompanied him all the way from Cheltenham, sometimes showing him the way, at others losing ground as the roads wound round the Monmouthshire hills, began a search for food, which apparently is scarce in Cardiff after midnight. Eventually a hospitable landlord was found, and the plucky young aviator was entertained to a sort of supper. The Cheltenham party remounted their cars at 3 a.m.



A Meeting for Northumberland and Durham.

AN appeal signed by the Hon. C. A. Parsons, C.B. has been issued by the Northumberland and Durham Aero Club for the raising of a guarantee fund of £3,000 to ensure the holding of a meeting in the North of England. Although definite arrangements

have not yet been made with regard to a site, it is hoped that the Gosforth Park racecourse will be available. The dates of the meeting have been provisionally fixed for September 7th to 10th, and it is hoped that all who can will notify the secretary at once as to the amount they are willing to guarantee. The secretary's address is Milburn House, Newcastle-on-Tyne.

THE PORTWAY AEROPLANE.

THE accompanying illustrations show a home-made aeroplane of the Santos Dumont type, that has been constructed during the last three months, at Bromley, in Kent, by Mr. A. P. Portway and his brother. The machine is described as follows by its designer:—

The machine is a monoplane of a modified Santos Dumont type, but larger, the spread of the wings being 25 ft., and length of chord 6 ft. 6 ins. The wings start at a slight dihedral angle, and then

broad tyres, and the wheel-skid combination suspension has been adopted.

The control is by an inclined steering wheel, universally jointed at its base. Rotating the wheel moves the elevator, while a lateral horizontal movement works the rudder. Warping is effected by a vertical lever behind the pilot, which is operated by his shoulders.

The engine is a 4-cylinder 35-h.p. Lascelles, driving a 7 ft.



Messrs. Portway's monoplane.

become horizontal at about a third of their length from the centre; they are double surfaced and covered in proofed silk.

The body is almost entirely of bamboo joined up with special cast sockets of aluminium, which makes a job remarkable for its strength, lightness and neatness. The tail-elevator is of the usual Santos Dumont, cruciform, non-lifting type. As will be seen in the second photo, we have replaced the original wheels by a pair having

propeller at 1,200 revolutions. The petrol is pressure-fed from a torpedo tank behind the pilot. The total weight of the machine complete is 350 lbs., and the surface 150 sq. ft. The angle of incidence is 8°.

The first trials were most successful, the machine showing a high speed and getting off the ground; but trouble with the tyres, and finally with buckled wheels, necessitated delay in repairs.



A LIGHT TROUGH RADIATOR.

WITH the object of reducing weight as far as possible, either for flight engines or for those used on motor vehicles, the radiator

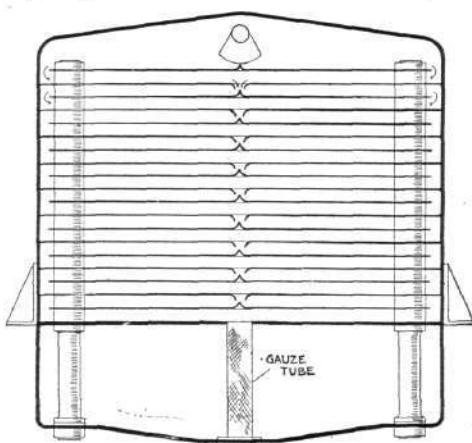
illustrated diagrammatically and sectionally herewith is built up with a large number of horizontal troughs having sloping sides that are telescoped partly within one another, and over the surface of which the water is conducted, while the air is more or less free to pass through between them also.

In certain forms the troughs are perforated, but in that shown herewith it will be observed that each alternate trough has a central hole leading down into the next, while the other alternate troughs are open at their ends for a like purpose.

In this way the water, which is pumped through the cylinder jackets of the engine, is caused to flow successively down through the radiator over the surface of each trough, until ultimately it regains the tank formed at the bottom, into which it flows through a gauze tube in readiness once more to be forced to the engine by the pump.

According to the precise requirements of the individual case, so the shape and distance apart of the troughs is determined—as also that of the baffle at the back of the radiator, shutters in which regulate the rate of the air flow.

This radiator is the invention of Mr. George Taylor, whose firm, the Clydesdale Engineering Works of Cardonald (Glasgow), is prepared to supply them in any required shape or size.

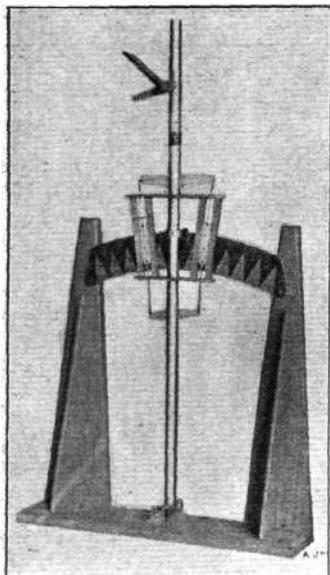


SOME MORE FLIGHT ACCESSORIES.

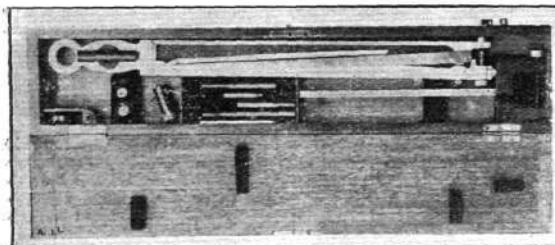
CONTROL LEVERS.

AN original type of locking device for control levers, invented by H. Taylor, has been placed on the market by W. Cochrane and Co. Its special purpose is to afford a positive grip and to avoid back-lash.

The locking bolt has triangular wedge-shaped teeth so spaced apart that they always press



Model of Taylor's patent lever gear by W. A. Cochrane and Co. The object of the design is to secure great strength and rigidity in the locking mechanism.



The Craig cylinder gauge, as constructed by Acer, Ltd., for the purpose of testing the accuracy of cylinders.

against opposite faces of fixed jaws on the stationary quadrant. A spring draws the two members together and thus automatically takes up all play. The locking bolt is released by an ordinary trigger on the handle.

EYEBOLTS.

Eyebolts of standard design can be obtained from Messrs. the Aeroplane Supply Co., Brown Bros., W. Cochrane and Co., Harris and Samuels, Melhuish and Co., Rubery, Owen, and Co., and Handley Page, Ltd. Those supplied by the latter firm are nickel-plated.

FIRST AID.

A neat but extremely useful little pocket "Tableoid" first-aid equipment, specially adapted for aeronauts, is placed on the market by Burroughs, Wellcome, and Co. It is no bigger than a cigarette case, being only about $3\frac{1}{2}$ inches square, and weighing about 4 ozs.

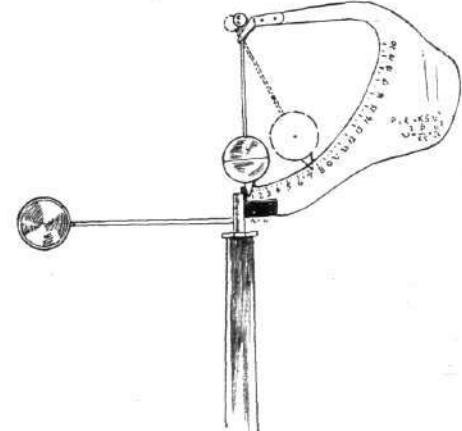


Okill's patent pressure-indicator introduced by Brown Brothers. The milled head on top of the device is screwed down until the lever on the left stops vibrating; the pressure is indicated on the scale.

INSTRUMENTS.

Dynamometers.—The Acer dynamometer is a simple and useful device for measuring the brake horse-power of engines. It has the advantage of not involving any calculations in determining the results of the measurement. The "B.H.P." is automatically recorded on a chart attached to the dynamometer, nor is any special apparatus needed for using this device, as it is merely placed in contact with the fly-wheel of the engine. The fly-wheel rubs against two cork pads, and also a wheel, which record the pull and the speed respectively.

Pressure Gauges.—The Okill pressure indicator, which has been placed on the market by Brown Bros., is a simple and compact device for ascertaining the compression or firing pressure in the cylinders of an engine. It consists of a cylindrical box, furnished with a screw fitting at one end and a screw-cap at the other. The screw fitting serves

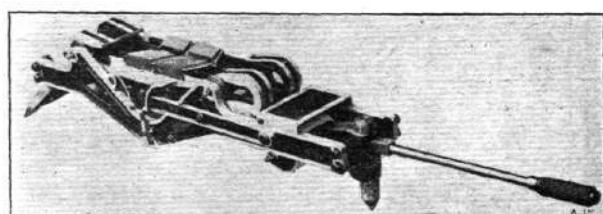


The above sketch shows an anemometer that is being put upon the market by Eyquem's Patents. The scale is in metres per second.

as a means of attaching the indicator to the cylinder, while the screw cap enables a spring contained inside the indicator-casing to be tightened down. On the outside of the indicator-casing is a small lever, which vibrates to and fro until the screw-cap is turned down to such a position as to bring the lever to rest. On the outside of the indicator-case a scale is engraved, and on the cap is a pointer that moves over the scale. When the lever has been brought to rest, the pointer on the cap indicates the maximum pressure in the cylinder by the reading on the scale.

Revolution Indicators.—Well made revolution indicators fitted in aluminium cases are made by S. Smith and Son, whose speed indicators, which are based on the same principle, have won such popularity with motorists.

A specially light revolution indicator for use on aeroplanes or dirigibles is also manufactured by Gratze, Ltd.



The Acer dynamometer, constructed by Acer, Ltd., for testing the horse-power of engines. This ingenious and well-made device is fitted with cork pads that are pressed against the revolving fly-wheel of the engine, and an automatic record is obtained of the torque and speed upon a diagram paper.

BRITISH NOTES OF THE WEEK.

Precautions at Lanark.

IN view of the several accidents which have occurred lately through machines passing too close to one another, we are officially advised by the managers of the coming aviation meeting at Lanark that the strictest possible rules will be laid down to competitors which will obviate any possibility of "air scorching," and so make it almost impossible for a repetition of such mishaps.

A. V. Roe at Brooklands.

MR. A. V. ROE has been making several good flights at Brooklands on his latest triplane, and has carried several passengers, including his mother, for short trips. One of his best "solo" trips lasted 14 mins.

A Mishap at Dunstall Park.

ALTHOUGH, of course, most of the aviators left Dunstall Park after the close of the Midland meeting, a few remained, including Preveuteau with a Humber, Mr. G. Bradshaw with the Star monoplane, and Mr. N. F. Holder with his Blériot. The last-mentioned was practising on Tuesday last, and was just finishing one of the best flights he has made up to the present, when his machine was caught by the wind, and capsized. Fortunately, Mr. Holder was unhurt, but the machine was somewhat damaged.

To Encourage Flyers at Filey.

WITH a view to encouraging experimenters to make use of Filey sands for their trial flights, Mr. J. W. Tranmer, of Scarborough, has suggested that subscriptions should be sought with the object of offering a prize for the first two miles flight over the sands by an aviator who has not previously won a prize. The local council have given their approval to the scheme. Mr. House, of Bradford, proposes to take his Blériot to Filey and try for the prize.

Mdlle. Frank to Fly at Boldon.

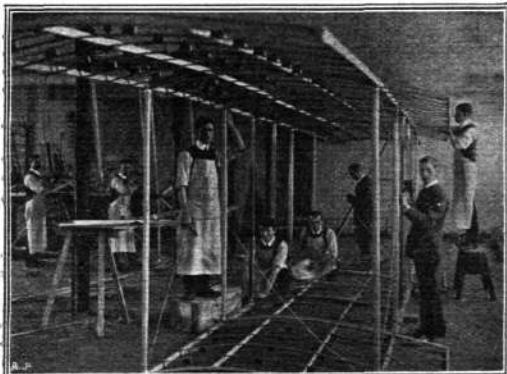
ARRANGEMENTS are now completed for the visit of Mdlle. Frank and her Farman biplane to Boldon on July 30th and August 1st, and both on the Saturday and Monday, weather permitting, she will take up passengers.

Flying from the Crystal Palace.

AFTER his flights at the Crystal Palace last week, Mr. Claude Grahame-White announced his determination to fly to Bournemouth, and arranged to start on Thursday afternoon. At the first attempt the engine misfired a good deal, but later this was remedied, and Mr. White took his seat on the machine and got off successfully. He cleared the trees round the enclosure, but within a few seconds Mr. White was in trouble, and was forced to bring his machine down at Norwood. In making a sudden turn to avoid some trees, the machine landed rather violently, resulting in the propeller being smashed. It was then decided to dismantle the machine and send it on to Bournemouth by train.

Mr. Cody Flying Again.

AIDED no doubt by his robust constitution and plucky nature Mr. S. F. Cody made a very rapid recovery from his recent severe accident, so much so that on Friday of last week he was able to once more mount his machine and make a satisfactory trial trip, about



One of the Farman type of machines in course of construction by Messrs. A. V. Roe and Co., to be fitted with an Avro motor, for a Bolton gentleman.



Mr. Sydney Spencer making a balloon ascent at Scarborough on the 4th inst. preparatory to making a parachute descent into the sea, from which he was picked up by a motor boat. Recently Mr. J. T. C. Moore-Brabazon's "No. 5" Short biplane, together with the "Daily Mail" and Michelin cups won on it, have been on exhibition at Scarborough Olympia, seen to the left of the photograph.

three miles in length; before packing up the machine for transport to Bournemouth, where he was flying on Wednesday.

Royalty at the United Services College.

H.S.H. PRINCE ALEXANDER OF TECK presided at the Founders Day celebration at the United Services College, Windsor, on Thursday of last week, and after the prizes had been distributed by Princess Alexander, a visit was paid to the aeronautical laboratory and workshop, which has been generously installed and equipped by Mr. Patrick Alexander. After inspecting the appliances provided for the use of students, the building was formally declared open by the Princess.

London to Paris Aerial Service.

IT would appear that the work of constructing an airship for the purpose of conveying passengers from London to Paris is to be taken in hand by Lady Abdy, although the amount to be spent upon the project varies between £15,000 and £50,000 according to different accounts. It is hoped to get together a committee of practical men who will advise as to the carrying out of the scheme. The airship is to be built at Lady Abdy's seat at Newdigate, Surrey.

Model Balloons and Flying Machines.

HERE is a little book, by J. H. Alexander, that is intended to help the model maker, and Chapter III thereof, which contains the first practical information, begins with a method of constructing a model fire balloon. The greater part of the book, however, is devoted to aeroplanes, and is illustrated very largely by photographs and diagrams from this journal, from which also many notes and dimensions have been taken with due acknowledgment. The important feature of the book is a set of working drawings on folded sheets, which immediately follow the reading matter. These are necessarily rather small, but otherwise should be of considerable assistance to any enthusiastic model maker who has sufficient originality to put a little individual thought into his work.—(Crosby, Lockwood and Son. Price 3s. 6d.)

FOREIGN AVIATION NEWS.

A Long Trial Trip on a Maurice Farman.

TESTING one of the latest Maurice Farman machines on Saturday last, Renaud made a flight lasting three quarters of an hour and then descended owing to his petrol giving out. Afterwards Tabateau, on a similar machine, went up, and only landed after 2 hours 45 minutes, during which he covered 231 kiloms., the average speed being 84 kiloms. per hour. The trip was made over a seven-kilom. course, and was officially observed for the Michelin Cup, but, of course, the performance was put in the shade by the records made at Rheims about the same time.

£4,000 for Crossing the Alps.

AMONG the prizes to be offered at the Milan meeting is one for £4,000 for a flight from Brig, 2,400 ft. above sea-level, through the Simplon Pass, 6,000 ft. high, Domodossola, over Lake Maggiore to Milan. The event is to take place about September 20th, and the aviators will be allowed twenty-four hours for the trip, with no restriction as to the number of stops. Several of the more prominent flyers at Rheims are said to have entered their names.

After Ten Days' Instruction.

A MAGNIFICENT performance was made on Sunday last by a young Belgian engineer named Lanson, who with only ten days' practice on a Henry Farman machine rose from the flying ground at Hasselt and landed in the grounds of the Brussels Exhibition after a flight of 80 kiloms. in 2 hrs. 10 mins.

M. Deutsche as a Composer.

SOME time ago M. Deutsche de la Meurthe conceived the idea of giving an operatic representation of the Legend of Icarus. He entrusted the writing of the libretto to M. Henri Caen, and now the work, both book and music, is complete and only awaits production.

The R.E.P. School at Buc.

USING an R.E.P. monoplane fitted with a 60-h.p. engine Pierre Marie mounted to a height of 200 metres and flew in wide circles over the surrounding country on the 5th inst., and ended the flight by planing down to earth. On Sunday he made three flights at heights of 150, 200, and 300 metres respectively.

Gaubert and Kuhling at Vichy.

DURING the past week Gaubert, on his Wright biplane, and Kuhling, on a Blériot monoplane, have been getting through a fair amount of flying at Vichy. On the 7th inst. Kuhling went up to an altitude of 300 metres and won the Golf prize offered by M. Aletti.

Doings at Mourmelon.

ON Sunday, M. Colliex returned from Rheims on his Voisin biplane, and witnessed his pupil, Forest, make 20 circuits of the flying ground. On Monday, at his second lesson, Morlat flew for four circuits on a Voisin.

On Sunday evening, Weiss on his Koechlin machine started for Rheims, but running into a fog at Cormontreuil, he thought it wise

to descend and continue his journey to Betheny on Monday morning, returning to Mourmelon later in the day. On the 8th inst., Weiss flew for half an hour, and Madame Niel made two circuits of the ground.

Flying at Johannisthal.

AT Johannisthal, on Monday, Dorner won the Lanz prize of 3,000 marks, and also qualified for his pilot's certificate. Thelen carried a passenger for a short trip, and later went up to a height of 200 metres and made a flight across country. Poulain covered 30 kiloms. and took a passenger for two circuits of the ground, whilst Engelhardt went up, but had a mishap, falling but without doing any damage.

Flying from Denmark to Sweden.

ALTHOUGH there was a strong wind blowing, four aviators endeavoured to fly across the Sound from Copenhagen to Malmö, Sweden, on Wednesday of last week. Two of them turned back, as the wind proved to be too strong. Baron Cederstrom, on a Blériot, and M. Svendson, on a Voisin, descended on the Isle of Saltholm, nearly half way across, as both were experiencing trouble with their engines. Later M. Svendson flew back to the Danish shore.

Daniel Kinet Seriously Injured.

SOON after starting on a flight from Ghent on Sunday morning, during which he intended to reach Liège, Mr. Daniel Kinet, on his Henry Farman machine, suddenly fell to the ground from a height of 100 metres. He was picked up terribly injured and taken to a hospital at Ghent, where it was at first reported that he had died. He was operated on for internal injuries on Monday, and according to latest advices there is a faint hope of his recovery. The accident is said to have been caused through a sudden stoppage of the motor.

Continental Aeroplane Fabric at Rheims.

NO less than 34 machines out of 76 at the Rheims Aviation Meeting were constructed with Continental aeroplane fabric, and these included the mounts of experienced aviators such as Blériot, de Lesseps, Count Lambert, Hanriot, Dubonnet, Sommer, Lindpainter, and so on, yet another proof of the popularity of this famous fabric.

German Military Aeroplane.

ACCORDING to a report from Berlin an aeroplane built by the German military engineers was given its initial trial trip on the 6th inst., and piloted by Herr Bruck it covered 2·5 kiloms. at a height of 40 metres in 2 mins. 2 secs.

An Ecclesiastical Flyer.

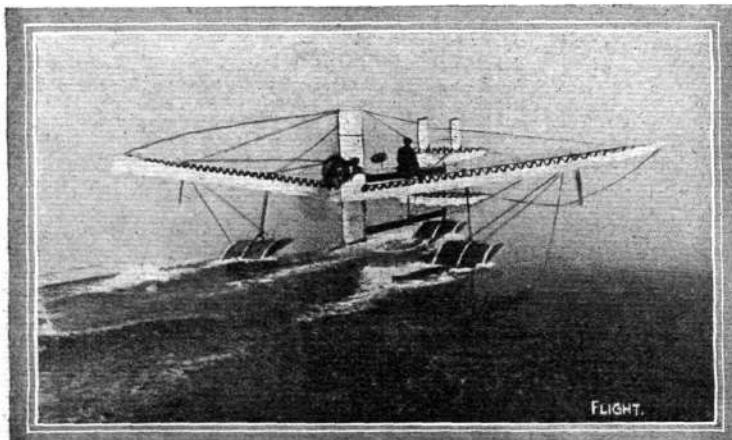
FROM Rome it is reported that the Abbot Bernetti, priest of Terrarai, has invented an aeroplane in which the chance of falling is reduced to a minimum. He announces that he will take part in all meetings if authorised by the Pope. Recently the priest made several trials before His Holiness, who is said to have promised to bestow his benediction upon the machine before it is used in competitions.

The World's Height Record—6,175 Feet.

GRADUALLY ascending in circles of about a mile in diameter, Walter Brookins, on his Wright machine, succeeded in beating the world's record for height on Saturday last at Atlantic City. At the end of about 56 mins. flying he was at an altitude of 6,175 ft. As he had very little petrol left, Brookins made the descent in a series of glides, thus conserving his fuel for the final landing. His flight lasted 1 hr. 2 mins.

More American Prizes.

THE President of the Aero Club of St. Louis has announced that on the occasion of the Gordon Bennett balloon race from St. Louis on September 17th a prize of £8,000 will be offered for an aeroplane race from Indianapolis to St. Louis and Chicago, returning to Indianapolis. Jointly the *New York Times* and *Chicago Post* have offered a further prize of £5,000 for a flight between New York and Chicago.



M. Henri Fabre's marine-aeroplane skimming over the sea.

CORRESPONDENCE.

* * * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents asking questions relating to articles which they have read in FLIGHT, would much facilitate our work of reference by giving the number of the letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

THE HANDLEY PAGE MONOPLANE.

[617] Your correspondent (§89) raises the question as to whether the combined rudder and elevator is effective on our machine. So far as the rudder is concerned, this, I find, is quite sufficient to allow me to turn on the ground in about an 11-yard radius when travelling about 15 to 20 miles per hour, but so far I have not attempted any turning whilst in the air.

The elevator acts very well after a speed of 20 to 25 miles per hour is reached. On our first trials I found that the wheels were slightly too far back, and the forward pull of the propeller tended to bring the machine on to the skid. This was rectified by moving the wheels about 4 ins. further forward, but so far the machine has shown itself wonderfully stable fore and aft and laterally, a very small movement of the elevator being sufficient to check any dipping tendency.

HANDLEY PAGE.

WING PROPULSION.

[618] With reference to letter 572, with the sentiments of which I am entirely at one.

Might I ask a favour of "Octavius," which would be appreciated by many of your readers?

He mentions the weight and wing area of the condor, which leads me to hope he is in the position to grant this favour, viz.:—The weight, wing area, and, if possible, the number of strokes per minute of wings in the various soaring birds.

Port Glasgow.

WYVERN.

THE "MAYFLY" GETS ITS ENGINE.

[619] I have at last got my engine. To hasten matters, I went over to England and brought it back not quite under my arm, but on two spars; it fitted very neatly into a railway carriage and also on to an outside car. I got it on the aeroplane and tried it late last night; but as I have not got my tank yet I tried to feed it out of a whisky bottle, and the only tubing I could find was my aunt's ear-

trumpet. Under the circumstances the engine behaved better than I expected, it was like a cat-fight on a very enlarged scale. The natives, I hear, thought one of the mills had blown up, but as the noise continued they put it down to a thunderstorm; in the meantime I found the mechanic while deeply interested in the engine was liberally pouring the petrol over the main plane instead of down the ear-trumpet, and the engine subsided with a sigh. As it was pouring with rain and too dark to see, the proceedings were terminated and I think I will wait for the tank, and as the engine is English its sense of humour is not devolved sufficiently for these proceedings.

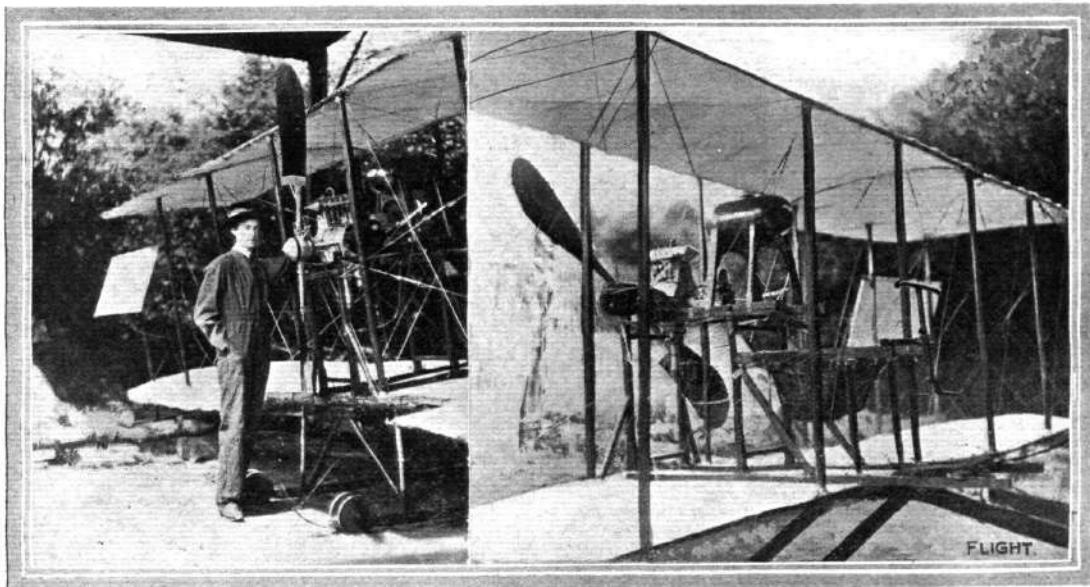
LILIAN E. BLAND.

[620] I enclose two photos of my engine in case you care to publish them. The one on the right is a side view, showing carpet seat, pedals, lever, &c., while the other is a back view of engine and myself. I find mechanic's overalls are the best things to wear; skirts are out of the question with all the wires, &c., not to speak of oil. The boxwood wheels on end of skids are only for running the machine along the road. The motor is a 20-h.p. Avro, and the propeller an Avro, adjustable pitch, 6 ft. 6 in. diameter; the engine is beautifully balanced, but all the same the vibration is enormous, and I find that all the nuts dance themselves loose; however, I can doubtless nut most of the bolts. I had the engine running nicely on Saturday, and as soon as I have got everything so that it will not shift, I shall take the machine up to the flying ground I have been lent. It is a fine place, 800 acres, but it also contains a loose bull, and if it gets annoyed and charges I shall have every inducement to fly!

LILIAN E. BLAND.

TESTING SPARS.

[621] Surely the "tip" given in your issue of even date, for "testing the strength of aeroplanes" is a very drastic one, as shown in the sketch; for instance, if an ordinary racing eight, as used in any boat-race, were placed on trestles, in the manner shown, and loaded with the weight of the crew in the centre, it would at once break in half, and the same would probably result even if the weight were distributed as in practice. Yet no such thing occurs when the boat is floating, loaded, on the water. Is it not probable therefore that the aeroplane tested in this manner is either very much too strong, from the point of view of weight of structure, or that it can carry much more weight than the test indicates, when it is floating in the air?



Copyright Photos.

The "Mayfly," with its 20-h.p. Avro engine in place. Miss Lilian Bland, its designer and owner, is seen in her businesslike working overalls in the left-hand photograph.

It is obvious that if the trestles were placed sufficiently close together near the centre, the weight, in a suitable form, such as a dry sand-bag, might be thrown on the aeroplane without making the wings bend too much, whereas they might not support the weight if the two trestles were at the extreme tips.

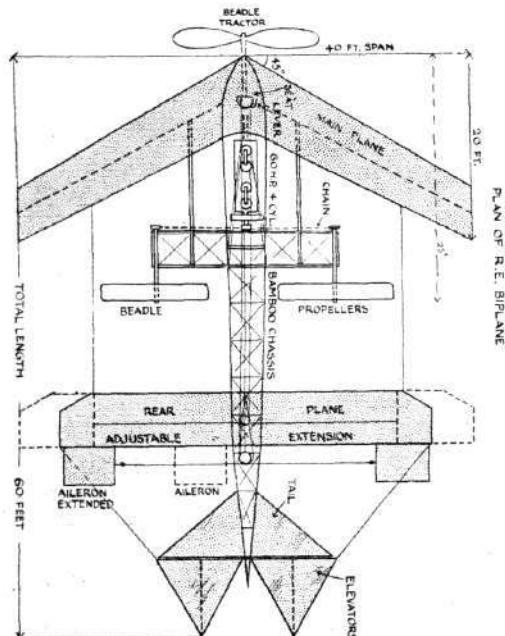
A discussion on the right place for the trestles might eclipse the discussion on the dihedral angle.

Earl's Court.

W. LANGDON-DAVIES.

THE "R.E." BIPLANE.

[622] Am sending you a sketch I made from my own ideas which I have had by me about twelve months now, and seeing the photos of the "Dunne" biplane I was surprised to notice a similarity in the two designs, and have enclosed sketch with explanation to same for you to publish if you care to, the idea being one of several of my own ideas in aeroplanes. I have called it the "R.E." biplane, and the main features and parts are as follows:—Main planes set back at angle of 45° to chassis, which is built of bamboo, resembling skeleton hull of a boat. It is driven by large Beadle tractor in front, and two Beadle propellers between main and rear planes, supported by framework attached to the chassis, the rear plane having an adjustable extension, as shown per diagram, which is worked by lever from aviator's seat in front of engine.



Another idea is adjustable ailerons worked in similar fashion by lever and wire running over pulleys up to seat of the driver, object being to regulate circle of movement of biplane in turning round. The rear part consists of keel on top and bottom, and tail to which is attached two small planes which act as elevators, and when required can be dropped to right angles to chassis, acting as a brake on speed of machine, and designed to act in conjunction with one of the ailerons, and so act as pivot for turning, the main plane being set at angle of 45° to offer less resistance to wind. The extension of rear plane is to afford as much surface over all from tip to tip as main plane, C, for rising from ground, and when up, say, 100 ft. or so, can be closed in to smaller dimension when flying is in full swing, the extension to act as greater stability and more lifting area as necessity may occur; also to be used for landing purposes for steadying the coming to earth. The outline of machine is, as you will see, very similar to Lieut. Dunne's biplane, though my sketch was drawn in March, 1909, and is entirely my own design. It may be of interest to some of the readers of your excellent paper, FLIGHT. Wishing your paper continued success, which it well deserves.

Chatham.

SAPPER GOSLING, R.E.

ENGINE AND PILOT.

[623] I wish to draw attention to a point in design that has not yet been discussed by your correspondent. It appears to me to be one of considerable importance. This concerns the relative position of the engine and the pilot. I notice that it is common practice for machines to be built with the pilot's seat in front, doubtless with a view of giving him a clear outlook. On the other hand it ought to be remembered that we are not as yet out of the wood and a smash is probable at any time. If the pilot sits in front of the engine there is every likelihood that the engine will fall on top of the pilot in the event of an accident, and for my own part I should prefer to have the engine in front in any machine I was using. Moreover, I think in that position it is better situated in respect to the pilot's hearing if the engine is working properly.

Dulwich.

R. SHAPLAND.

[The question is one that is much discussed among aviators, who recognise the danger, but also appreciate the desirability of an unobstructed view. It is occasionally overlooked, however, that improved methods of construction may do much to remove some at least of the danger in which the pilot is placed in the event of an accident. So long as the engine does not carry away from its frame the chances of the pilot being smashed by its fall are less serious.—ED.]

HELICOPTER V. AEROPLANE.

[624] Please could you, or any reader of FLIGHT, inform me of the meaning of longitudinal stability, also why could not helicopter machines be made as successful as our ordinary flying machines of the present day? Wishing your paper everlasting success, I conclude a regular reader of FLIGHT.

Chesterfield.

F.A.V.S.W.

[Longitudinal stability is steadiness in the direction of flight, that is to say, stability against pitching and tossing. A machine or a model aeroplane is stable longitudinally if, when disturbed, the oscillations thus created tend to die out naturally. If such oscillations tend to augment, the phugoid path of the flyer will terminate in an inverted semi-circle, and the machine will fall first to the ground. The ballasted plane (see "Flight Manual," N. 48) affords a simple means of demonstrating longitudinal stability.

A helicopter has to lift the entire weight of the machine and pilot, whereas the propeller of an aeroplane only has to thrust against a small part of that weight. If the problem of the helicopter be studied mathematically (see "Flight Manual," F. 100 and N. 92), it will be found that the best design of helicopter is theoretically that in which the diameter is infinitely great. A circle with an infinitely great diameter has a circumference represented by a straight line, so that a blade of a helicopter designed to travel in a straight line would represent the conditions of maximum efficiency. Now, in principle, an aeroplane and the blade of a propeller are identical, and the aeroplane may therefore be regarded as the blade of a screw designed to travel in a straight line. By this reasoning an aeroplane becomes the helicopter of greatest efficiency.—ED.]

EARLY DESIGNS.

[625] I am writing to ask if any of your readers can give me any information concerning the design of aeroplane that the Aerial Transit Co. of 1843 intended to use? From a drawing I have, it appears to have been a monoplane of considerable spread, with a monoplane tail, a boat-like hull, and steam for its motive power; except for the latter it appears (in general outline) to have been very similar to the modern aeroplane, although the planes were apparently flat.

Was the machine ever constructed, and if so, did it ever lift itself?

I should also be glad of information concerning an aeroplane constructed by an Austrian (Herr Wilhelm Kress) in 1901; it appears it had three wings (I do not know their position in relation to each other), five screws, two for driving and three for steering (?), which were driven by a petrol engine weighing 700 lbs. It is said to have lifted itself from the water, in which it was afterwards lost.

Details of these early attempts would be of much interest to me.

Thanking you for the information I have already received from FLIGHT from No. 1 to the present time.

Regent's Park.

NOEL M. VERNHAM.

[The first machine referred to in our correspondent's letter was, in all probability, based on the designs of Henson and Stringfellow, who were, it is supposed, influenced by the writings of Sir George Cayley. The design is particularly interesting, because it is so close an approximation to the modern monoplane; indeed, the trussing of the main spars is practically identical with that of the Antoinette.—ED.]

MODELS.

MODEL FRAMEWORK CONSTRUCTION.

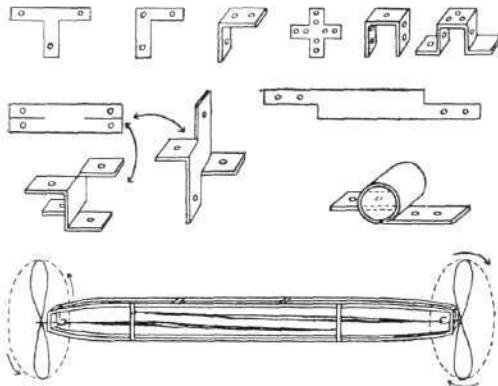
[626] In answer to Mr. Alfred Allen [476], as to how I make my joints with round dowel sticks, I may say I rarely use them in the round state.

What I usually do is, plane them down to the required shape and thickness.

My object in using dowel sticks is because in the manufacture they are drawn from the straight grain of the wood; therefore, the breaking strain is about equal all along the length.

What is favourable to me, where I live is the heart of the cabinet trade; consequently, can get almost any kind of wood I may require.

My means being rather limited, I employ the most economical



methods of obtaining what is required. For instance, the angle pieces, as shown in the accompanying sketch, are made from my spare pieces of metal, such as an old clock-spring after the temper has been taken out of it, or the metal from a coffee or cocoa tin.

When building my models I do not study weight so much as strength; if a model works out heavier than estimated, then I increase the motive power. With one of my models (monoplane) I was compelled to use two propellers—one back and front. It may be of interest to some of your readers to know that, at the same time, I solved the problem of neutralising the torque of an elastic motor without the use of gear-wheels.

For fastening the angle pieces, I use non-splitting nails, $\frac{1}{8}$ in., and about as thick as an ordinary domestic pin.

As, no doubt, it is very difficult, and sometimes impossible, to obtain in small towns what a model-maker may require in the interests of this fascinating science, I am quite willing to purchase and forward anything that it is within my power to obtain to any of your readers, if they cover the necessary expense.

Shoreditch.

J. H. WILKINS.

LIFT IN MODELS.

[627] I notice that W. Vale, on page 84, 330 of No. 57 of FLIGHT, inquires whether any models on the market will lift themselves if suspended end on.

I do not think so, as the "trade" make their models to be used by those who probably will not take proper and reasonable care of them. Main sticks are of a "good, honest kind," and all parts liable to breakage are strengthened, the result being a heavy model, but one that *will* fly some distance.

My own idea is that both models and their larger brothers are made too heavy by the "trade," and also by lovers of aviation. It seems to me that if a machine is made light the crash when it falls will be less than if it were heavier. A good instance of this is given in Santos-Dumont's flyer. The wing breaks, and the machine comes down quicker than it should—what was the result? A shock there certainly was, but total damage either of himself or his flyer did not take place. Was not this because his machine weighed only 392 lbs., and he himself a light weight?

I maintain that lightness does not always imply weakness, as some would have us believe, for I have a small model monoplane—total weight $1\frac{1}{2}$ ozs., 8 in. propeller, silk planes—and it lifts itself by propeller-thrust, if held end-on as your correspondent remarks.

Now this model is as near unbreakable as it could well be. It has been up trees all night; stones have been thrown at it in the hope of bringing it down—which was, I am pleased to say, suc-

cessful—and through it all nothing gave way, and it is still a perfect flyer of 100 yards.

To conclude this long letter, a feather, if dropped from the hand, will not damage itself in contact with the ground, because every part of it is flexible. Now, why could we not have a monoplane with all its truss-wires connected to a main lever, so that, in the event of contact with the ground, the aviator could weaken the whole of the wires in the machine, and therefore make the fall elastic?

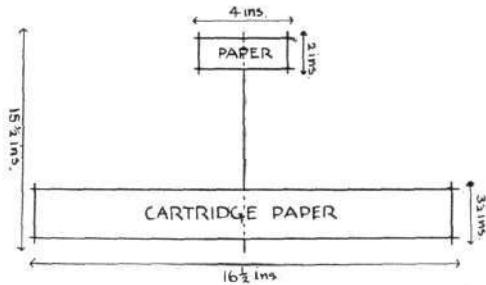
With all success to FLIGHT.

A. V. HUGHES.

[It is a feature of some flyers—the Wright biplane, for instance—that the tie-wires are not absolutely tight, and are not provided with "stretches." This is in order to enable the machine to "give" under shocks without breaking.—ED.]

PAPER MODEL.

[628] I have constructed a small model glider of my own design which I hope will be of use to some of your readers. It is made from two pieces of cane, thinned down to $\frac{1}{16}$ in. in thickness and $1\frac{1}{2}$ ins. long. These are bound together by shorter canes of the same thickness, $3\frac{1}{2}$ ins. long, by strong thread. The whole aero-



plane is covered with cartridge paper. The backbone is a straight piece of cane $1\frac{1}{2}$ ins. long and $\frac{1}{8}$ in. in thickness, and is bound to the centre of the mainplane. The small plane is constructed in the same way by canes 4 ins. long by $\frac{1}{16}$ in. in thickness, and joined by canes 2 ins. long.

Steventon.

A. G. WORTHINGTON.

FOLKESTONE MODEL AERO CLUB.

[629] Would you kindly enquire through your columns as to whether any young men in this district are desirous of forming a model aeroplane club? We have splendid facilities here for flying models, and also full-size power machines. With a few men with ideas and constructional capabilities, we should have every opportunity of coming to the fore amongst clubs. Sincerely hoping to hear from many intending members at the address given.

44, Harvey Street, Folkestone.

R. T. SAUNDERS.

ELASTIC MOTORS.

[630] I should like to know from some of your other readers who have had experience with similar sized models what propellers and weights of elastic have given the most satisfactory results. My model, which is of the Blériot type, has the following dimensions:—

Main planes, 42 ins. by 9 ins.; tail or elevator, 15 ins. by 6 ins.; length, 40 ins. over all; weight, 1 lb. without elastic and propeller.

The planes are double surfaced, and built of ash and bamboo. It is mounted on spring forks and rubber-tyred wheels at the front and a spring castor at the back.

H. S. MOORHOUSE.

MOTOR FOR MODEL.

[631] Re letter No. 558, as I am able to quote from results obtained by experiments in model flying by motor, I should advise "A. J. C." not to attempt any clockwork or petrol design, but adhere to simple rubber elastic. Having tried both elastic and petrol with fair success, I found the petrol gaining in weight over the elastic as I increased its power, so determined to stick to rubber for my monoplane. My method, which I succeeded greatly with, consisted of seven lengths of six-strand elastic, and as the first length exhausted its working tension, the second immediately engages, and as that exhausts itself the third becomes engaged, and so on till the seventh is exhausted, and the flight terminates consequently. My monoplane is 5 ft. in length, 4 ft. span, and weighs,

with tractor, 45 ozs., and motor 7½ ozs., and rising from ground runs an estimated maximum distance of 800 ft.

Southsea.

A. BENN.

MODEL CONSTRUCTION.

[632] Will some other reader of your splendid paper please tell me which is the best way to fix one plane above the other in a model biplane?

Charlton.

H. HENDERSON.

CLIPS FOR BAMBOO.

[633] With regard to Mr. Nilruh's [486] questions:—

1. He will get bamboo at any of the firms advertised in FLIGHT.

2. I have used the taper end for tail part.

3. I used the following system, making clips with a light strong metal, as sketch.

I am also interested in Mr. W. Yeatman's letter [849], in which he states that an aeroplane makes a rapid descent. It might interest him to know I have devised a plan which will make an aeroplane go at any slow speeds, and will thus make descents slow and safe without breaking wheels and skids, &c. Not having a machine, I should like to make arrangements with a reader concerning the above.

Nelson.

B. NUTTER.

Motorists' Souvenir at Bournemouth.

DURING the Centenary Fêtes at Bournemouth the Anglo-American Oil Company have been distributing a very useful souvenir—a guide to those interested in the events of the meeting in which motors—and, consequently, Pratt's spirit—play a part, motoring, aviation, and motor boating.

NEW COMPANIES REGISTERED.

Oyler's Aeroplanes, Ltd., 35, New Cavendish Street, W.—Capital £500, in £1 shares. Manufacturers of and dealers in aeroplanes, balloons, motors, &c.

Scottish International Aviation Meeting, 1910 (the word "Limited" omitted by licence of the Board of Trade), 133, St. Vincent Street, Glasgow.—Limited by guarantee to prepare for and carry on at Lanark a meeting, called the "Aviation Meeting," for the exposition and advancement of the science and principles of aeronautics, and the demonstration and encouragement of the art and practice of aviation or aerial flights. The income and property of the Association is to be applied towards the promotion of the objects of the Association, and no dividend or bonus is to be paid to members. The subscribers are: Lord Provost M'Innes Shaw, Glasgow; Andrew M'Lennan, merchant, Glasgow; R. Maclean, Provost of Lanark; R. R. Spiers, structural engineer, Glasgow; Archibald Barr, Professor of Engineering, University, Glasgow; J. H. Biles, Professor of Naval Architecture, University, Glasgow; Robert Graham, City Treasurer, Glasgow; Baillie Thomas Dunlop, Glasgow; and Hugh Reid, engineer, Glasgow.

PUBLICATION RECEIVED.

Leitfaden der Luftschiffahrt und Flugtechnik. By Dr. Raimund Niemüller. Vienna: A. Hartleben. Price 13 m. 50.

IMPORTS AND EXPORTS, 1910.

Aeroplanes, airships, balloons and parts thereof (not shown separately before 1910).

Imports.	Exports.	Re-Exportation.
January ... 2,516	January ... 750	January ... 550
February ... 437	February ... 2,950	February ... —
March ... 7,516	March ... 128	March ... 600
April ... 6,305	April ... 950	April ... 1,470
May ... 846	May ... 400	May ... 350
June ... 7,961	June ... 642	June ... 558
6 months ... 25,581	6 months ... 5,820	6 months ... 3,528

Aeronautical Patents Published.

Applied for in 1909.

Published July 14th, 1910.

14,414. J. SCHÜTTE. Airships.
22,206. T. PROTIN AND C. CONTAL. Aeroplanes.
24,902. R. BROCKLEHURST. Flying machines.

Applied for in 1910.

Published July 14th, 1910.

25,298. O. NAUSS. Manufacture of gas for airships.

DIARY OF FORTHCOMING EVENTS.

British Events.

1910.	1910.
July 11-16 Bournemouth.*	Aug. 15-20 Blackpool.
July 16 Kite and Models Competition. Kite and Model Aeroplane Assoc.	Aug. 17-24 Southend.
July 23 Balloon Race, Hurlingham	Aug. 24-27 Cardiff.
July 28-Aug. 3 Blackpool.	Aug. 29-30 Dublin.
Aug. 6-13 Lanark.*	Sept. 1-3 Folkestone.
	Sept. 8-10 Northumberland and Durham.

Foreign Events.

1910.	1910.
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